٠.,

1,

```
OM protein - protein search, using sw model
                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                         Searched:
                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                    Run on:
Aimum DB seq length: 0
Waximum DB seq length: 2000000000
                                                          tal number of hits satisfying chosen parameters:
                                                                                                     283308 seqs, 96168682 residues
                                                                                                                                             BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                 US-09-839-894-10
1886
                                                                                                                                                                                                                                                                                      August 19, 2003, 09:43:59; Search time 42 Seconds (without alignments) 826.593 Million cell updates/sec
                                                                                                                                                                                                          1 MNKILFIFTLFFSSVLFTFA.....EAGQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                 283308
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database :

PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

pir1:*
pir2:*
pir3:*
pir4:*

SUMMARIES

29 98.5		28 98.5	27 99	26 99		¥ ¥	O H O			21 102	10	19 103.5	18 103.5			15 105.5	14 106	13 107	12 107	11 107	10 108	9 108	8 109	7 114	6 120	5 120	4 275.5	3 930.5	. 2 949.5	1 1558.5	No. Score	Result
5.2		5	5.2	5.2	5.2		יו יי	י נע	ت. 4	5.4	5.5	5 .5	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.7	5.7	5.7	5.8	6.0	6.4	6.4	14.6	49.3	50.3	82.6	Match Length	Query
4919		608	1849	856	802	1790	1 1 1	1753	1238	692	2399	1269	691	1441	598	843	671	304	304	304	2529	524	2383	650	2660	1335	359	364	363	360	Length E	
2		2	2 د	2									2		2					2						2			-	2	DB	
T31105	10447	H64473	C41859	B81399	AH1580	CBJJJY		7/20/5	AH0038	G90284	H71879	A90267	в75622	B86807	АВ1236	AC2507	A38109	F85725	C90892 ·	A64904	B64635	S55097	D64962	S22835	E85822	G90975	AE0541	S57937	S49539	D56617	ij	
hypothetical prote	il pocinectost proce		<pre>IqA-specific metal</pre>	probable periplasm	phenylalanyl-tRNA	nypothetical prote		hypothetical prote	nrohable exported	hypothetical prote	toxin-like outer m	proteinase related		hypothetical prote	internalin protein	hypothetical prote	autolysin - Entero	probable adhesin,	probable adhesin [probable fimbrial	toxin-like outer m	probable membrane	probable membrane		probable invasin 2	probable factor [i	probable fimbrail		CooD protein precu	cfaE protein precu	Description	

5	44	43	42	41	40	39	38	37	36	<u>3</u> 5	34	ω 3	32	31	30
94.5	94.5	95	95	95	95	95.5	95.5	96	96.5	97	97.5	86	98	98	98
5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.2	5. 2	5.2	5.2	5.2
858	835	5188	2334	561	413	895	713	992	2364	454	1797	1157	1014	758	587
N	N	N	N	N	Ц	N	_	N	N	N	N	N	N	N	N
T47223	E71691	B85547	S32920	A84113	S28602	T02597	ALBSXR	T28421	I40884	T01337	F69195	S38160	S37405	S47866	AC1510
replication licens	outer membrane ass	probable RTX famil	cell wall-associat	transposase (12) B .	translation releas	Mutator-like trans	cyclomaltodextrin	probable DNA-direc	cytotoxin L - Clos	hypothetical prote	cell surface glyco	NUP133 protein - y	cytotoxic necrotiz	SPT21 protein - ye	internalin protein

ALIGNMENTS

RESULT 1 D56617

Qy	Δp	0v 5	2. Oy	Db	·Qy	Db	Qy	Db	Qy	Db	Qy	Query Match Best Local Matches 29	A;Gene: cfaE A;Genome: plasmid C;Superfamily: Es	A; Note: s	A;Cross-r	A; Residues:	A; Status:	A;Title:	R; Jordi, DNA Seq.	C; Accessi	C;Species	cfaE prot
361 L 361	NTASLETNWNRITAVTMPEISVEVLCWPGRLQLDAKVKNPEAGQYMGNIKITFTPSSQT	241 UGISINSSSLEIREQUUNSASUGAETLAALNUUSAELYTILSULLAGANLIFTINGQALNI 300 301 ADAASLETNWARITAYTMPEISYPVICWPGRLOLDAKVENPBAGOYMGNINVTETPSSOT 360	DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI		181 RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY 240		121 KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK 180	61 SHHLYDRWSFLCLSSQNTLNGACPSSDAPGTATIDGETNITLQFTEKRSLIKRELQIKGY 120	61 SHTLYDRATFICLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY 120	1 MNKILFIFTLFFSSGFFTFAVSADKNPGSENMTNTIGPHDRGGSSPIYNILNSYLTAYNG 60	1 MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE 60	y Match 82.6%; Score 1558.5; DB 2; Length 360; Local Similarity 81.2%; Pred. No. 1.4e-109; hes 293; Conservative 31; Mismatches 36; Indels 1; Gaps 1;	Gene: cfaE Gene: cfaE Genome: plasmid Superfamily: Escherichia colonizing factor antigen cfaE	sequence extracted from NCBI backbone (NCBIN:108960, NCBIP:108972)	A;Cross-references: GB:M55661; NID:g145507; PIDN:AAC41417.1; PID:g145511	A;Molecule Type: DNA A;Residues: 1-360 <jor></jor>	A;Status: preliminary	A; Title: The complete nucleotide sequence of region 1 of the CFA/I fimbrial operon of A; Reference number: A56617; MUID:92329981; PMID:1332712	jst, B.A.; Gaastra, W.	CC_1 C 4 10 10 11	coli	05601/ CfaE protein precursor – Escherichia coli plasmid NTP113

48.48;

```
₹2
                          A;Description: The genes for A;Reference number: S57934
A;Recession: S57937
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-364 <FRO>
A;Cross-references: EMBL:Z47
C;Genetics:
A;Start codon: TTG
C;Superfamily: Escherichia c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cood protein precursor - Escherichia coli
C;Species: Escherichia coli
C;Date: 15-Feb-1996 #sequence_revision 01-Mar-1996 #text_change 10-Dec-1999
C;Accession: $49539
R;Froehlich, B.J.; Karakashian, A.; Melsen, L.R.; Wakefield, J.C.; Scott, J.
Mol. Microbiol. 12, 387-401, 1994
A;Title: Cooc and Cood are required for assembly of CS1 pili.
A;Reference number: $49538; MUID:94344028; PMID:7915003
A;Accession: $49539
                                                                                                                                                        R;Froehlich, B.J.; Karakashian, A.; Melsen, submitted to the EMBL Data Library, January A;Description: The genes for CS2 pili of ent
                                                                                                                                                                                                     CotD protein precursor - Escherichia coli C;Species: Escherichia coli C;Date: 13-Jan-1996 #sequence_revision 01 C;Accession: S57937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;Status: preliminary;Molecule type: DNA;Residues: 1-363 <FRO>
    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cross-references: EMBL:X76908; NID:g488735; PIDN:CAA54230.1; PID:g488737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          uery Match
                                                                                                                                                                                                                                                                                                                        353
                                                                                                                                                                                                                                                                                                                                                   351
                                                                                                                                                                                                                                                                                                                                                                                293
                                                                                                                                                                                                                                                                                                                                                                                                            291
                                                                                                                                                                                                                                                                                                                                                                                                                                         234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                           YITFTPSVENL 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKLRVKRRYSET----YGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KGYKQLLFKSVNCPSG--LTLNSAHFNCNKNA-ASGASLYLYIPAGELKNLPFGGIWDAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVS-GETNITLQFTEKRSLIKRELQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KILFIFTLFFSSVLFTFAVSADKIPGDE--SITNIF-GPR-DRNESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               г
                                                                                                                                                                                                                                                                                                                                                   NVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                       GSNSLDMCFYDGYSTNSDSMVIKFQDDNPTNSSEYNLYKIG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGNKKPIWENQSCDFSNLMYLNSKSWSCGAHGNANGTLLNLYIPAGEINKLPFGGIWEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLSHSLYDRIVFLCTSSSNPVNGACPTI---GTSGVQYGTTTITLQFTEKRSLIKRNINL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KKIFIFL----SIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQSPIYNIFTNHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LILRLS-RYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNPRVDLNLRPIGNYKYS
                         TTG
Escherichia colonizing factor antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50.3%;
milarity 53.1%;
Conservative 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                       EMBL: Z47800;
    49.3%;
                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55;
                                                                       NID:g897725;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 949.5; DB 2; Pred. No. 7.7e-64;
  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ed. No. 7.76
Mismatches
                                                                                                                                                                                                                    01-Mar-1996 #text_change
  930.
                                                                                                                                                          enterotoxigenic Escherichia
  .
5
                                                                                                                                                                          L.R.; Scott,
1995
                                                                       PIDN:CAA87763.1;
  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98; Indels
  Ņ
Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                       -GTEKLPYAVSLLMGEKIF
                                                                                                                                                                                        J.R.
  364;
                                                                       PID:g897729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21;
                                                                                                                                                                                                                      10-Dec-1999
                                                                                                                                                           coli and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  174
                                                                                                                                                                                                                                                                                                                                                                                                                                      292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11;
                                                                                                                                                           their
                                                                                                                                                           inte
                                                                                  QΥ
  밁
                       δÃ
                                                          밁
                                                                                                                 В
                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                  R; Parkhill, J.; Dougan, G.; James, K.D.; Thomson, th, T.; Connerton, P.; Cronin, A.; Davis, P.; Davis, S.; Moule, S.; O'Gaora, P. Nature 413, 848-852, 2001
A; Authors: Parry, C.; Quail, M.; Rutherford, K.;
                                                                                                                                                                       밁
                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:AL513382; C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-359 < PAR>
                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: A; Accession: AE0541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                               A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                        A; Title: Complete genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE0541
                                                                                                                                                                                                                                Query Match
Best Local S
Matches 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 48.4 Matches 177; Conservative
                                                                                                                                                                                                                                                                                          tcfD
 244
                            241
                                                          184
                                                                                   184
                                                                                                                                            130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                       79
                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                Similarity
DG-GVKARSLQMKIEGSNKSGTGFQVIKSDSADT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSSSSL 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PSSQTL 361
                                                                                                                                                                                                                                 Conservative
```

```
TSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                              DMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNG
                                                                                                                                                                                                   ELRVKRHYDYNHGTYKVNITVDLTDKGNIQVWTPKFHSDPRIDLNLRPEGNGKYSGSNVL
                                                                                                                                                                                                                             KLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSV
                                                                                                                                                                                                                                                                                                    GYKRFLYESDRCIHYVDKMNLNSHTVKCVGSFTRGVDFTLYIPQGEIDGLLTGGIWEATL
                                                                                                                                                                                                                                                                                                                                              GYKQLLFKSVNC---PSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATL
                                                                                                                                                                                                                                                                                                                                                                                                                           NKDHSLFDRMTFLCMSSTDASKGACPTGENSKSS--QGETNIKLIFTEKKSLARKTLNLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTESIGPIDRSAAASYPAHYIFHEHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRN--ESSPKHNILNNHITAY
EAFTINDTSSLFINWNRIKSVSLPQISIPVLCWPANLTFMSELNNPEAGEYSGILNVTFT
                                                                                                 EMCLYDGYSTHSQSIEMRFQDDSQTGNNEYNLIKTGEPLKKLPYKLSLLLGGREFYPNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 2.1e-62;
4; Mismatches 118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                            355
                                                                                                                                                                                                238
                                                                                                                                                                                                                                                     235
                                                                                                                                                                                                                                                                                                    178
                                                                                                                                                                                                                                                                                                                                                                                                      118
                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                 298
```

probable fimbrail protein tcfD [imported] - Salmonella enterica subsp. enterica (;Species: Salmonella enterica subsp. enterica serovar Typhi A;Note: this species has also been called Salmonella typhi C;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 18-Nov-2002 C;Accession: AE0541 serov

Thomson, N.R.; Pickard, P.; Davies, R.M.; Dowd,

, D.; 1

Wain, J.; Church; White, N.; Farr

enome sequence of a multiple drug resistant AB0502; MUID:21534947; PMID:11677608 Simmonds, **X** :. Skelton, J Salmonella enterica Stevens S e

14.6%; 29.7%; 48; Score 275.5; DB 2 Pred. No. 3.2e-13; Mismatches 130; 2 Length Indels 35; Gaps

PIDN:CAD08773.1;

PID:g16501589;

GSPDB:GN00176

FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVN 129

--CPSGLTLNSAHFNCNKNAAS---GASLYLYIPAGELKNLPFGGIWDATLKL-RVKRRY 183 WVCRSNRNENEGACEETHLVWWYAFGAYSKIRLRFREQISHAEITL-----ILLGSVR 131

SETYGTYTINITIKLTD--KGNIQIWLPQF-KSDARVDLNLRPTGGGTYIGRNSVDMCFY DACYTGV-----INMNAAACQWGRSLKLRIPSEELAKIPTSGTWKATLVLDYLQWGG 240 183

DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI DDPLGTSTTDITLNVTDHFAENAAIYFPQFGTATPRVDLNLHRMNASQMSGRANLDMCLY IDYAVSMNYGGRSIPVTRGVEFSL 300 243 300

```
probable invasin 23135 [imported] - Escherichia col
C;Specias: Escherichia coli
C;Date: 16-Feb-2001 #sequence_revision 16-Feb-2001
C;Accession: E85822
R;Perna, N.T.; Plunkett III, G.; Burland, V.; Mau.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
G90975
11ler, L.; Grotbeck, E.J.; Davis, N.W.; Lim, A.;
Nature 409, 529-533, 2001
A;Title: Genome sequence of enterohemorrhagic Esc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Accession: G90975
Status: preliminary
A; Molecule type: DNA
A; Residues: 1-1335 <HAY>
A; Cross-references: GB:BA000007; PIDN:BAB36198.1; PID:g13362243;
A; Experimental source: strain O157:H7, substrain RIMD 0509952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Hayashi, T.; Makino, K.; Ohnishi, M.; Kurokawa, K.; Ishii, K.; Yokoyama, K.; Isaunaga, T.; Kuhara, S.; Shiba, T.; Hattori, M.; Shinagawa, H. DNA Res. 8, 11-22, 2001
A;Title: Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7
A;Reference number: A99629; MUID:21156231; PMID:11258796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Date: 18-Jul-2001 #sequence_revision 18-Jul-2001 #text_change
C;Accession: G90975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              probable factor [imported] - Escherichia coli (strain 0157:H7, substrain C; Species: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Reference number: A99629;
Accession: G90975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ECs2775
                                                                                                                                                                                                       1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                     GNGVDETTLTATVKDP-FDNVVKNLSVVFRTS 1094
                                                                                                                                                                                                                                                                                                                                                                                                      TATLT-----SLKNGDYTVTASVSSGSQANQQVIFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                                                                                                                                     DATLKLRYKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NEVVADGNDSATMTATVRDAKGNLLNDVKVTFNVNSAAAKLSQTEVNSHD------GIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RELQIKGY-KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SAKIATISASNNGVIANENAANTVSVNVADEGS---NPINDHTVTFAVISGSATSFNNQN 802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY - - - SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAK---VENPEAGQYMGNINVTFTPS
                                                                                                                                                                                                                                                                    KGMTDSNGTAIASLTGTLAGTHMITARLANSNVSDTQPMTFVADKDRAVVVLQTSKAEII 1063
                                                                                                                                                                                                                                                                                                     KSLTPTNGTSL----
                                                                                                                                                                                                                                                                                                                                                                    RNSVDMCFYDGYSTNSSSLE----IRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNVDKAATR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                     --RLQLDAKVENPEAGQYMGNINVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20.4%;
                                                                                                                                                                                                                                                                                                                                       -TNTAPLHMTATLQDKNGNPLKDKEITFSVPND----VASRFSISNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PVVLPGQRQAVRCVPVPLTLTTQPFNIREKRSGEYQGTLTVTMLMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66;
                          Burland, V.; Mau, B.; biwa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 120; DB Pred. No. 0.86;
                                                                                                                 Escherichia coli (strain 0157:H7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                    ---NIADAASLETNWNRITAVTMPEISVPVLC
Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2;
                                                                                #text_change 14-Sep-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1335;
                               Glasner,
Lanta, E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
coli
0157:н7
                                 J.D.; Rose,
Potamousis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-Jul-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSPDB:GN00154
                                                                                                                   substrain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RIMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           857
                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   355
                                 × ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0509952)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Han,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                 Apodaca
                                                                                                                   EDL933)
                                                Mayhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ġ
                                                                                                                                                                                                                                                                                                              R.Hauser, K.; Tanner, W.
R.Hauser, K.; Tanner, W.
PEBS Lett. 255, 290-294, 1989
A.Title: Purification of the
A.Reference number: S22835; M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
S22835
                                                                                                                                                                                                                                                                                                  A; Reference number:
A; Accession: S22835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                A; Molecule type: protein A; Residues: 20-24 < HA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Experimental source: strain C; Genetics:
                                                                                                                 A; Accession: A32822
                                                                                                                                                                                                                                 A; Accession: S51229
                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-650 <HAU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Gene:
                                                                                                                                                                                                                                                      A;Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                     ;Species: Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KSLTPINGISL ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.48;
```

```
A; Molecule type: DNA
A; Residues: 1-448, 'P', 450-555, 'E', 557-580, 'L', 582-650 <LIP>
A; Cross references: GB.M28164; NID:g171041; PIDN:AAA34417.1;
R; de Haan, M.; Smits, P.H.M.; Grivell, L.A.
submitted to the EMBL Data Library, May 1995
A; Reference number: S55183
A; Accession: S55192
                                                                                                                                                                                                                                                     R;Lipke, P.N.; Wojciechowicz, D.; Kurjan, J.
Mol. Cell. Biol. 9, 3155-3165, 1399
Mol. Cell. Biol. 9, 3155-3165, 1990
A;Title: AG-alpha-1 is the structural gene for the Saccharomyces
A;Reference number: A32822; MUID:90014768; PMID:2677666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alpha-agglutinin - yeast (Saccharomyces cerevisiae)
N;Alternate names: 22K glycoprotein; protein J1418;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Reference number: A85480; MUID:21074935; PMID:11206551
A;Accession: E85822
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-2660 <STO>
A;Cross-references: GB.AE005174; NID:g12516151; PIDN:AAG57041.1;
A;Experimental source: strain O157:H7, substrain EDL933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Date: 04-Dec-1992 #sequence_revision 04-Dec-1992 #text_change; Accession: S22835; S51229; A32822; S55192; S57019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GNGVDETTLTATVKDP-FDNVVKNLSVVFRTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAKIATLSASNNGVLANENAANTVSVNVADEGS---NPINDHTVTFAVLSGSATSFNNQN 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPG--RLQLDAKVENPEAGQYMGNINVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KGMTDSNGTAIASLTGTLAGTHMITARLANSNVSDTQPMTFVADKDRAVVVLQTSKAEII 1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NEVVADGNDSATMTATVRDAKGNLLNDVKVTFNVNSAAAKLSQTEVNSHD------GIA 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RELQIKGY-KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY - - - SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RNSVDMCFYDGYSTNSSSLE----IRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: X16861; NID: g3352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -SLKNGDYTVTASVSSGSQANQQVIFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TNTAPLHMTATLQDKNGNPLKDKEITFSVPND---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e inducible alpha-agglutinin
MUID:90005993; PMID:2676603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 120; DB Pred. No. 2.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----NIADAASLETNWNRITAVTMPEISVPVLC 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PIDN:CAA34752.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein YJR004c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of
                                                                                                                              PID: 9171044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PID:g3353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-Oct-1999
                                                                                                                                                                                                                                                                                          cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSPDB:GN00145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----K 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                molecula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          UWGP:
```

```
t,
A; Nolecule type; DNA
A; Residues: 1-2383 <BLAT>
A; Residues: 1-2383 <BLAT>
A; Coss-references: GB:AE000289; GB:U00096; NID:g1788285; PIDN
A; Cross-references: Strain K-12, substrain MG1655
A; Experimental source: strain K-12, substrain MG1655
C; Keywords: nucleotide binding; P-loop; transmembrane protein
F; 54-70, Domain: transmembrane #status predicted <TMM>
F; 54-70, Domain: nucleotide-binding motif A (P-loop)
                                                                                                                       R;Blattner, F.R.; Plunkett III, G.; Bloch, A.; Rose, D.J.; Mau, B.; Shao, Y. Science 277, 1453-1462, 1997
A;Title: The complete genome sequence of Es A;Reference number: A64720; MUID:97426617; A;Accession: D64962
A;Status: nucleic acid sequence not shown;
                                                                                                                                                                                                                                         probable membrane protein b1978 - Esche C;Species: Escherichia coli C;Date: 12-Sep-1997 #sequence_revision C;Accession: D64962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;de Haan, M.; Grivell, L.A.; Smits, P.H.M. submitted to the Protein Sequence Database, A;Reference number: S56771
A;Accession: S57019
                                                                                                                                                                                                                                                                                                              D64962
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Cross-references: A; Map position: 10R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Gene: SGD: SAG1; AGAL1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:Z49504; NID:g1015625; PIDN:CAA89526.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-650 <ZAG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: EMBL:X87611; NID:g854567; PIDN:CAA60926.1; R;de Haan, M.; Grivell, L.A.; Smits, P.H.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: DNA
A; Residues: 1-650 < DEH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                          336
                                                                                                                                                                                                                                                                                                                                                                             396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glycoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 ILFIFTLFFSSVL----FTFA-----VSADKIPG------DESITNIFGPRDRNE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                          IYSTDSNITVGTDIHTTSEVISDVETISRETASTVVAAPTSTTGWTGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --DCSSVQVYSSNDFNDWWFPQSYNDTNADV-----TCFGSNLWITLDEKLYDGEML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSITFSLNFSDGGSSYEYEL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSP---KHNILNNHITA----
                                                                                                                                                                                                                                                                                                                                                                                                                                       FISTTTTDLTSINTSAYSTGSISTVETGNRTTSEVISHVVTTSTKLSPTATTSLTIAQTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YLRKINDDTKEI - - - AYTLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WVNALQSLPANVNTIDHALEFQYTCLDTIANTTYATQFSTTREFIVYQGRNLGTASAKSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSGRSTGYGSFESYHLGMYCPNGYF----LGG----TEKI------DYDSSNNNVDL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNC-PSGLTLNSA 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMPHVYRIKLLNSSQTATISLADGTEAFKCYVSQQAAYLYENTTFTCTAQNDLSSYNTID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILWLFSLALASAININDITFSNLEITPLTANKQPDQGWTATFDFSIADASSIREGDEFTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HENCNKNAASGASLYL--YIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIK 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                          Plunkett III, G.; Bloch, C.A.; Perna, lau, B.; Shao, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SAL1; AGALPHA1
SGD:S0003764;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----WLPQFKSDARVDLNLRPTGGGTYIGRN---SVDMCFYDG---
                                                                                                                                                                                                                                                                                          Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 0.95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MIPS:YJR004c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                           17-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ENAKFFKSGPMLVKLGNQMSDVVNFDPAAFTENVF
                                                                                                                                                          Escherichia coli
7; PMID:9278503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----YSESHTLYDRMTFLC----LSSHNTLN 80
                                                                                                                                                                                                                                                                                                                                                                                                          -RITAVTMPEISVPVLCWPGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----YSTNSSSLE--IRFQDNN--PKSDGKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                September
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   147;
                                                                                                                                                                                                                                                          #text_change
                                                                                                                                                                                                                                                                                          (strain K-12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -LLLAGKSLTPTNGTSLNIADAA 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 172;
                                                                                                                                                                                                                         N.T.; Burland, V.; Riley,
                                                                            PIDN: AAC75042.1;
                                                                                                                                                                           K-12
                                                                                                                            shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PID: 9854577
                                                                                                                                                                                                                                                          01-Mar-2002
                                                                                                                                                                                                                                                                                                                                                                          444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PID:g1015626;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                            PID:g1788288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIPS:YJR0
                                                                                                                                                                                                                           3
                                                                                                                                                                                                                           ն
                                                        Ş
                                                                                                                       Qy
                                                                                                                                                         DЬ
                                                                                          Вþ
                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                            밁
                                                                                                                                                                                                                                                                                                                                                                          A; Gene: MIPS: YMR215w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                         A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R; Dedman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Accession: S55097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                         Genetics:
                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1020
                                                                                                                                                                                           119
                            360
                                                                                          314
                                                                                                                          174
                                                                                                                                                          264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13
                                                                                                                                                                                                                           69;
```

```
A;Map position: 13R
C;Superfamily: glycophospholipid-anchored surface glycoprotein
C;Keywords: transmembrane protein
F;7-23/Domain: transmembrane #status predicted <TMM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-524 <DED>
A; Cross-references: EMB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     probable membrane protein YMR215w - yeast (Saccharomyces cerevisiae)
N;Alternate names: hypothetical protein YM8261.09
C;Species: Saccharomyces cerevisiae
C;Date: 08-Jul_1995 #sequence_revision 01-Sep-1995 #text_change 19-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Experimental source:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: S55089
A; Accession: S55097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        submitted to the EMBL Data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              K.; Brown, D.; Bowman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    172 DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG
                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
EISSDSIYKCDNSAITNIYSGFGTNNFTLPSQPAEIANMIEYGVNGTNT-GKILTDYAVP
                                           YIGRNSVDMC-----FYDGYSTNSSSLE----
                                                                                                                       TLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSD-ARVDLNLR----PTGGGT
                                                                                                                                                                   GYDKLNSTFEDAVIP----LIFSEYGCNKNTPRTFDEVSEGLY---GGLKNVFSGGL---
                                                                                                                                                                                                          GYKQL--LFKSVNCPSGLTLNSAHFNCNKNAA---SGASLYLYIPAGELKNLPFGGIWDA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GNGVDETTLTATVKDP-SNHPVAGITVNFT 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NEVVADGNDSVTMTATVRDAKGNLLNDVMVTFNVNSAEAKLSQTEVNSHD-----GIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RELQIKGYKQL-LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SAKIATLSASNNGVLANENAANTVSVNVADEGS---NPINDHTVTFAVLSGSATSFNNQN 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPG--RLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KGMTDSNGVAIASLTGTLAGTHMIMARLANSNVSDAQPMTFVADKDRAVVVVLQTSKAEII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KSLTPTNGTSL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RNSVDMCFYDGYSTNSS----SLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY - - - SESHTLYDRMT
                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                -VYEYTEEANNYGL---VKLDDSGSL----TYKDDFVNLESQLKNVSLPTTKES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL: 249809;
                                                                                                                                                                                                                                                                                                                                                                                                                     SGD:S0004828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       strain
                                                                                                                                                                                                                                                                     5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLKNGDYRVTASVSSGSQANQQVNFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            THTAPQYMTATLQDKNGNPLKDKEITFSVPND-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09; NID:g854459; PID:g854467; GSPDB:GN00013; MIPS:YMR215
AB972
                                                                                                                                                                                                                                                  42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ß
                                                                                                                                                                                                                                                                       Score 108;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------NIADAASLETNWNRITAVTMPEISVPVLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               June
                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109; DI
No. 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                                                             BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157;
                                                                                                                                                                                                                                                                                           2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                                                                                                                                                                                                                                                    96;
                                       ---IRFQDNNPKSDGK-----
                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2383;
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                             524;
                                                                                                                                                                                                                                                                                                                                                                              GAS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -VASKFSISNGG
                                                                                                                                                                                                                                                    72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----K
                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 873
                                                                                359
                                                                                                                                                                   313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                         264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               976
```

```
probable fimbrial protein b1502 - Escherichia coli (strain C;Species: Escherichia coli C;Species: 12-Sep-1997 #sequence_revision 17-Sep-1997 #text_c C;Accession: A64904 R;Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N. R.; Rose, D.J.; Mau, B.; Shao, Y. Science 277, 1453-1462, 1997 A;Title: The complete genome sequence of Escherichia coli 1,Reference number: A64720; MUID:97426617; PMID:9278503 A;Accession: A64904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
B64635
toxin-like outer membrane protein HP0922 -
toxin-like outer membrane protein HP0922 -
C:Species: Helicobacter pylor1
C:Species: ----1007 #sequence_revision 09-
                                                                                                                                                                            RESULT
A64904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 388, 539-547, 1997
A;Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.; Smith, H.O.; Fraser,
A;Title: The complete genome sequence of the gastric pathogen Helicobacter pylori.
Reference number: A64520; MUID:97394467; PMID:9252185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, R. Peterson, S.; Loftus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; McKerson, J.D.; Kelley, J.M.; Cotton, M.D.; Weldman, J.M.; Fujii, C.; Bowman, C.; Watthey, Nature 388, 539-547, 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: GB:AE000602; GB:AE000511; NID:g2314060; PIDN:AAD07969.1; PID:g23140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Accession: B64635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Molecule type: DNA Residues: 1-2529 <TOM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: preliminary; nucleic acid sequence not shown; translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 08-Oct-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1034 SNLSLDNQSVLNANNTSAFNNQASLNIYNGSQATFNSLFFNG---GTLSLNASSKLNASN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                   SNIKGLFTPKGSQT
                                                                                                                                                                                                                                                                                   GNINVTFTP-SSQT 360
                                                                                                                                                                                                                                                                                                                                                                                      KSVTY -- NILNAQKGITGISGANGYEKILFYGMKIQNATYSDNNNIQTWSFINPLNSSQI
                                                                                                                                                                                                                                                                                                                                                                                                                      KEIAYTLSLLLAGKSLTPTNGTS------LNIADAASLETN----WNRITAVTMPEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                           --FDSASSLNFNNLTANGALNFNGYTPSLTKALMSVSGQFVLGNNGDINLSDINIFDNIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MCFYDGYSTNSSSL----EIRFQDNNPK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ASFSNNTTINLDDSVLSASNTSSLNANI-----NFQGASQADF-----GGNTIIDTASFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTYTINITIKLTD------KGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SGLTL-NSAHFNCNKNAA--SGASLYLYIPA-GELKNLPFGGIWDATLKLRVKRRYSETY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSNFNATTQLLGNTNFTL---SSQSLLNFNGDTTLQNNANITLGNKSQAAFKNSLTLDNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSENPSSSSVSGETNITLQFTEKRSLI------KRELQIKGYKQLLFK---SVNCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SSSTGSSSSTG----SSSASSSSKSKGVGNIVNVSFSQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EISVPVLCWPGRLQLDAKVENPEAGQYMGNI-NVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTFNYTIKNNKDDT---ISATISYDKA-NSLNELDVTATTVAKSASTSQSSSRSLTSSTSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----FYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNR-ITAVTMP
                                                                                                                                                                                                                                                                                                                  IQESIKNGDLTIEVLNNPNSASNTIFNIAPELYNYQASKQNPTGYSYDYSDNQAGTYYLT 1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                      -SVPVL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.7%; Score 108; 22.5%; Pred. No. 1
                                                                                                                                                                                                                                                 1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                    -CWPGRLQLDAKVENP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122;
                                                                                                                                                          (strain K-12)
                                                                                                                        #text_change 01-Mar-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----SDGKFYLRKIN---DDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pylori
                                                                                      Ŋ.Т.;
                                                                                        Burland,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (strain
                                                                                                                                                                                                                                                                                                                                                    ---EAGQY--M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          not shown
                                                                                      ٧.;
                                                                                                                                                                                                                                                                                                                                                                                                                      321
                                                                                                                                                                                                                                                                                                                                                                                        1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           475
                                                                                                                                                                                                                                                                                                                                                    347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187
                                                                                        Riley,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               McKenn
                                                                                        X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                          ğ
                                Qγ
                                                                  Ъ
                                                                                                   Q
                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
   맑
                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R; Hayashi, T.; Makino, K.; Ohnishi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
                                                                                                                                                                                                                                                                               ;Superfamily:
                                                                                                                                                                                                                                                                                                                  Genetics:
                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                   ECs2107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90
   90
                                                                      64
                                                                                                        55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                               Similarity
                                                                      ISCWNDYGGWYD-----
                                                                                                                                                                                                                                                                                 fimbrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                               protein fimH
                                                                                                                                                                                                                             5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.7%;
21.0%;
                                                                                                                                                                                                               51;
```

```
A;Cross-references: GB:AE000247; GB:U00096; NID:g1787773; A;Experimental source: strain K-12, substrain MG1655 C;Superfamily: fimbrial protein fimH C;Keywords: fimbria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Status: nucleic acid sequence not shown; translation A;Molecule type: DNA A;Residues: 1-304 <BLAT>
                                                                                                                                                                                                                                    VVIKAGEVIARIHMYKIATLGSGNPRNFTWNIISNNNVVMPTGGCTVDSRNVTVDLPDFP 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KILF-IFTLFFSSVLFTFAVSADKIPGDESI----TNIFGPRDRNESSPKHNI---LNNH
ATKASGYGYTLMRNGKILATGENVSLGTVNKSKYPLGLSATYGOTGNKVSAGTVQSV
                                                      DTKEIAYTLSLLLAGK-----SLTPTNGTSLNIADAASLETNWNRITAVTMPEI
                                                                                                                                                                          SDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIND 272
                                                                                                                                                                                                                                                                                                                                                                                                        ELQIKGYK-QLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ITAYSESHTLYDRMTFLCLSSH-NTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKR 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KVLFGIYLLLMAGKVFAFSCNVD----GGSSIGAGTTSVYVNLD-PVIQPGQNLVVDLSQH
                                                                                                                                                                                                                                                                                          ATLK-----LRVKRRYSETYGT-----YTINITIK------LTDKGNIQIWLPQFK 212
                                                                                                                                                                                                                                                                                                                                                    --SLQSYKGSLYWNNVTYPFPLTTNTNVLDIGDKTPMPLPLKLYI-----TPVGAAGG 140
                                                                                                                -GVYCS-SEQKLSFYLSGATTDSSRQV-FANTAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Score 107; DB; Pred. No. 1.2; 51; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIDN:AAC74575.1; PID:g17877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                   b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54
                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19;
```

gasawara, N.; Yasunaga, T.; Kuhara, S.; Shiba, T.; Hattori, M.; Shi DNA Res. 8, 11-22, 2001 A;Title: Complete genome sequence of enterohemorrhagic Escherichia A;Reference number: A99629; MUID:21156231; PMID:11258796 A;Accession: C90892 A;MoLecule type: DNA
A;Residues: 1-304 <HAY>
A;Residues: 1-304 <HAY>
A;Coss-references: GB:BA000007; PIDN:BAB35530.1; PID:g13361573;
A;Experimental source: strain O157:H7, substrain RIMD 0509952 probable adhesin [imported] - Escherichia coli (strain O157:H7, substrain RIMD C;Species: Escherichia coli Date: 18-Jul-2001 #sequence_revision 18-Jul-2001 #text_change 03-Aug-2001; Accession: C90892 M.; Kurokawa, K.; S.; Shiba, T.; Hat Ishii, × :. ; Yokoyama, Shinagawa, GSPDB:GN00154 coli 0157:H7 Ξ. Han, 050995 and

Score 107; Pred. No. 1 ced. No. 1.2; Mismatches

125; 2;

Indels 106;

Gaps

Length 304;

ELQIKGYK-QLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD 172 KVLFGIYLLLMAGKVFAFSCNVD----GGSSIGAGTTSVYVNLD-PVIQPGQNLVVDLSQH KILF-IFTLFFSSVLFTFAVSADKIPGDESI----TNIFGPRDRNESSPKHNI----LNNH ITAYSESHTLYDRMTFLCLSSH-NTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKR --SLQSYKGSLYWNNVTYPFPLTTNTNVLDIGDKTPMPLPLKLYI----TDHINLVQG----TPVGAAGG 140 9 113 63

```
autolysin - Enterococcus faecalis
C;Species: Enterococcus faecalis
C;Date: 24-Jul-1992 #sequence_revision 24-Jul-199
C;Accession: A38109
R;Beliveau, C.; Potvin, C.; Trudel, J.; Asselin,
J. Bacteriol. 173, 5619-5623, 1991
                                                                                                           RESULT 14
A38109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GB:AE005174; NID:g12515169; PIDN:AAG56266.1; GSPDB:GN00145; UWGP:Z2:A;Experimental source: strain O157:H7, substrain EDL933 C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F85725
   A; Title:
                                                                                                                                                                         밁
                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-304 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: Genome sequence of enterohemorrhagic Escherichia A;Reference number: A85480; MUID:21074935; PMID:11206551 A;Accession: F85725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tr,Perna, N.T.; Plunkett III, G.; Burland, V.; Mau, B.; Glasner, iller, L.; Grotbeck, E.J.; Davis, N.W.; Lim, A.; Dimalanta, E.; Nature 409, 529-533, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                probable adhesin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Superfamily: fimbrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Species:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ate: 16-Feb-2001 #sequence_revision 16-Feb-2001 #text_change 14-Sep-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccession: F85725
   Cloning,
                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                       114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                  55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lhesin, FimH type protein 22206 [imported] - Escherichia coli (strain Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                    ATKASGYGYSLMRNGKILATGENYSLGTYNKSKYPLGLSATYGQTGNKYSAGTYQSY
                                                                                                                                                                                                                                                                                             VVIKAGEVIARIHMYKIATLGSGNPRNFTWNIISNNSVVMPTGGCTVDSRNVTVNLPDFP
                                                                                                                                                                                                                                                                                                                                                                                     ELQIKGYK-QLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                ITAYSESHTLYDRMTFLCLSSH-NTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKR 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KVLFGĮYLLLMAGKVFAFSCNVD----GGSSIGAGTTSVYVNLD-PVIQPGQNLVVDLSQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KILF-IFTLFFSSVLFTFAVSADKIPGDESI----TNIFGPRDRNESSPKHNI---LNNH
                                                                                                                                                                                                      DTKEIAYTLSLLLAGK-----
                                                                                                                                                                                                                                  GSAEIPL-----GVYCS-SEQKLSFYLSGTTTDSARQV-FANTAP-
                                                                                                                                                                                                                                                                                                                                                                                                                    ISCWNDYGGWYD-----TDHINLVQG-----SAFAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATKASGYGYSLMRNGKILATGENYSLGTYNKSKYPLGLSATYGQTGNKYSAGTYQSY 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DTKEIAYTLSLLLAGK ------SLTPTNGTSLNIADAASLETNWNRITAVTMPEI 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VVIKAGEVIARIHMYKIATLGSGNPRNFTWNIISNNSVVMPTGGCTVDSRNVTVNLPDFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATLK-----LRVKRRYSETYGT-----YTINITIK-----LTDKGNIQIWLPQFK 212
                                                                                                                                                                                                                                                             SDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIND 272
                                                                                                                                                                                                                                                                                                                          ATLK-----LRVKRRYSETYGT-----YTINITIK------LTDKGNIQIWLPQFK 212
                                                                                                                                                                                                                                                                                                                                                        --SLQSYKGSLYWNNVTYPFPLTTNTNVLDIGDKTPMPLPLKLYI-----TPVGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIND 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
   sequencing, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein fimH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GVYCS-SEQKLSFYLSGTTTDSARQV-FANTAP------D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 107;
Pred. No. 1
   expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                 SLTPTNGTSLNIADAASLETNWNRITAVTMPEI
                                                           24-Jul-1992 #text_change
   in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2;
   Escherichia
                              A . ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2; Length 304;
                              Bellemare,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        coli
   coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O157:H7
                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J.D.; Rose, Potamousis,
                                                            15-Oct-1999
   of
   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
Streptococcus
                                                                                                                                                                                                                                 b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                  239
                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                  89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Apodaca,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O157:H7
   faed
                       Qy
                                                                                    Q
                                                                                                                       밁
                                                           밁
                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                             R; Kaneko, T.; Nakamura, Y.; Wolk, C.P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                 A; Genome:
                                                                                                                                                                                                                                                               A; Gene: all 7235
                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-843 < KUR>
                                                                                                                                                                                                                                                                                                                                                        A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Accession: AC2507
                                                                                                                                                                                                                                                                               Genetics
                                                                                                                                                                                    Matches
                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                               plasmid
   417
                              161
                                                            357
                                                                                           116
                                                                                                                         297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           309
                                                                                                                                                    77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
   KINNIIIGLDGVFNTVASGSGAGGNLFLELENLIIKDGGASLGSSTIRSGQGGNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ASLETNWNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W-----NGISGDLIFVGQKLIVKKGTSGNT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PKSDGKFYLRKINDDTKEIA--YTLS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -QSGTNTYYTVKSGDTLN--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                312
                                                                                                                                                                                                 5.6%;
18.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.6%;
23.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39;
                                                                                                                                                                                    67;
                                                                                                                                                                                  Score 105.5; D
Pred. No. 5.8;
67; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 106; DB Pred. No. 3.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                    127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2;
```

```
A;Reference number: A38109; MUID:91358349; PMID:1679432
A;Accession: A38109
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-671 <BEL>
A;Cross-references: GB:M58002; NID:g153658; PIDN:AAA67325.1; PID:g829194
                                                                                                                                                                                                                                                                                                                                                                                                                                                 41 RNESSPKHNI-LNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSV-----
                                                                                                                                                                                                                                                          AASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQI
                                                                                                                                                                                                                                                                                                                                                                                                                     RYATDPSYNAKLNNVITAY -- NLTQYDTPSSGGNTGGGTVNPGTGGSNNQSGTNTYYTVK
                                                                                                                                                                                                                                                                                                           SGDTLNKIAAQYGVSVANLRSWNGISGDLIFVGQKLIVKKGA---SGNTGGSGNGGSNNN
                                                                                                                                                                                                                                                                                                                                                               SGET -- NITLOF -- -- TEKRSL -- IKRELOIKGYKQLLFKSVNCPSGLTLNSAHFNCNKN
QSGTNTYYTIKSGDTLNKIAAQYGVSVANLRSWNGISGDLIFAGQKIIVKKGTSGNTGGS
                                                                                                                                                     WLPQFKSDARVDLNL-----RPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNN
                                                                                                                                                                                                         -----KIAAQYG-----VTV-----ANLRS
                                                 ----LLLAGKSLTPTNGTSLNIADA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                       GGSSNGGS - - - - - NNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                        258
                                                                                                                                                                                                                                                                                                                                                                  146
                                                   303
                                                                                                    491
                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                             206
                                                                                                                                                                                                                                                                                                                 423
  551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94
```

Nakazaki, N.; Shimpo, S.; Sugımow, P., Jan.
Nakazaki, N.; Shimpo, S.; Sugımow, P., Jan.
DNA Res. 8, 205-213, 2001
DNA Res. 8, 205-213, 2001
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium hypothetical protein all7235 [imported] - Nostoc sp. (strain PCC 7120) plass (;Species: Nostoc sp. PCC 7120 c;Species: Nostoc sp. PCC 7120 is a synonym of Anabaena sp. strain PCC C;Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change 09-Dec-2002 A;Cross-references: GB:BA000020; PIDN:BAB78319.1; PID:g17135773; A;Experimental source: strain PCC 7120 ELKNLPFG--GIWD-----ATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLP TIQGGQIATTTFTNAPSGLITINSNSLKISGDTPSYANPDGLGGINTFSYSSGKGGDIAG QIKGYKQLLFKSVNCPSGL-TLNSAHFN-----CNKNAASGASLYLYIP-----AG NILDGSLVFTQNHGFKTGAVKIDAQSLNIQGSSNLALSAIYTSNFGFTPGESIQLDVKDV NTLNGACPTSEN-----PSSSSVSGETNITLQ-----FT--EKRSLIKREL Kuritz, T.; Sasamoto,
; Takazawa, M.; Yamada (strain PCC 7120) plasmid pCC712 Indels Length 843; : : 111; GSPDB:GN00180 ; Watanabe, .; Yasuda, 1 Gaps e, A.; Irigu M.; Tabata 416 160 356 115 471 209

This Page Blank (uspto)

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          otal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                n imum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
::
       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1558.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
      94.55
91.55
92.55
92.55
92.55
92.55
92.55
92.55
92.55
92.55
92.55
                                                                                                                                                                                                                                                                                                         95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-839-894-10
1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127863 seqs, 47026705 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             August 19, 2003, 09:37:09; Search time 23 Seconds
       SwissProt_41:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MNKILFIFTLEFSSVLFTFA......EAGQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
      DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gapext 0
YEAL ECOLI
YEAL ECOLI
YEAL ECOLI
SAGILY EAST
YEAL ECOLI
ALYS ENTFA
SYFB.LISIN
IGA4 HAEIN
IGA4 HAEIN
YD93 METJA
SP21 YEAST
CD2 PAEMA
REIM YEAST
CD32 PAEMA
REIM YEAST
CD4 PAEMA
REIM YEAST
CD7 CANAL
DACR
THE CANAL
OAR MYXXA
FAB1 YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               738.115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              127863
   p31851
p31875
p30775
p30775
q007833
q007833
q007833
q007850
p569450
p569450
p96154
Q96154
Q9747
Q98472
Q98473
Q984
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q8x8v7
P20840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P25734 escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
clostridium
xenopus lae
homo sapien
schizosacch
h genome po
saccharomyc
                                                                                                                                                                1 saccharomyc
5 paenibacill
5 saccharomyc
5 bacillus su
5 saccharomyc
5 baccharomyc
6 baccharomyc
7 buchnera ap
7 ovis aries
8 bacillus th
8 candida alb
9 myxococcus
                                                                                                                       saccharomyc
buchnera ap
escherichia
                                                                                                                                                                                                                                                                                                                                                                                enterococcu
listeria in
                                                                                         mycoplasma
listeria mo
                                                                                                                                                                                                                                                                                                                                                  haemophilus
methanococc
                                                                                                                                                                                                                                                                                                                                                                                                                                          escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                            saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        escherichia
```

ρ 밁

밁

61 13 \vdash

SHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY

SHHLYDRMSFLCLSSQNTLNGACPSSDAPGTATIDGETNITLQFTEKRSLIKRELQIKGY

120

Дy	X m to	DR DR SQ	88888888	CC RT RA	RP RA RA RT	R 2 2 2 2 2 8 8		CFA		
	Query Ma Best Loc Matches	EMBL; PIR; Antig SEQUE	This betweethe use modifientite	SEQUEN MEDLIN Jordi "The c operon DNA Se	SEQUE STRUMED Hamovan van "Thompson open Mic."	Escher Plasmi Bacter Entero NCBI_T	01-1 01-1 01-1	RESULT 1 CFAE_ECOLI ID CFAE AC P2573		4444 5000 4444 5000 4444 5000 5000 5000
1 MNK 1 MNK	atch cal sim: 293;	EMBL; M55661; PIR; D56617; 1 Antigen; Fimb: SEQUENCE 360	This SWISS-PROT entry between the Swiss In the European Bioinform use by non-profit modified and this statementitles requires a light or send an email to light.	SEQUENCE FROMEDLINE-9232 Jordi B.J.A. "The complet operon of hu DNA Seq. 2:2	SEQUENCE FROM N.A. STRAIN-Enterotoxigenic; MEDLINE-89330103; PubMed- Hamers A.M., Pel H.J., Wi van der Zeijst B.A.M., Ga "The nucleotide sequence operon of human enterotox Microb. Pathog. 6:297-309 [2]	Escherichia col Escherichia col Plasmid NTP513. Bacteria; Prote Enterobacteriac NCBI_TaxID=562;	AY-1992 AY-1992 JG-1992 I fimbri	1 OLI AE_ECOLI 5734:		88 89 89 86 87 88 86 87 88 86 88 86 88 86 86 86 86 86 86 86 86
ILFIFT 	ilarity Conservat	5661; AAC41 517; D56617 Fimbria; P 360 AA;	ROT en Swiss Bioin -profi this this mail t	E FROM N.A. *92329981; .J.A.M., Wi nplete nucl of human en . 2:257-263	FROM N.A. terotoxig 9330163; M., Pel H eijst B.A eotide se human en human es	coli. 13. oteoba iaceae	Rel. Rel. Rel. l sut	STA		4444444444.
LFFSSV FFSSG	82. 81. Live	AAC41417.1; D56617. ria; Plasmid O AA; 39903	Insti- Insti- format: format: t ins- statem a licer o licer	PubMed= 11shaw eotide terotox (1992).	enic; PubMed .J., W .M., G quence teroto 297-30	cteria ; Esch	pa	TANDARD;		465 1394 468 792 711 1290 411 1290 11002 1273 1567
FFTI		; d. 3 MW	cop ics ics titu ent ent ent	G./	=256 ills ills aast of of xige 9(19	erio	eate st s st a	•		
MNKILFIETLEFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE 	Score 1558.5; DB 1; Lengt; Pred. No. 1.6e-112; 31; Mismatches 36; Indels	3A8E69CE CRC64	roduced ics and re are n as its c Usage nttp://w	UENCE FROM N.A. LINE-92339981, PubMed-1352712; di B.J.A.M., Willshaw G.A., van der Zeijst B.A.M., e complete nucleotide sequence of region 1 of the e ron of human enterotoxigenic Escherichia coli."; Seq. 2:257-263(1992).	IN A. Itoxigenic; 163; PubMed=2569152; Pel H.J., Willshaw G.A., Kusters J.G., Pel H.J., Gaastra W.; It B.A.M., Gaastra W.; de sequence of the first two genes of the an enterotoxigenic Escherichia coli."; g. 6:297-309(1989).	Escherichia coli. Escherichia coli. Plasmid NTP513. Bacteria; Proteobacteria; Gammaproteobacteria; Enterol Enterobacteriaceae; Escherichia. NCBI_TaxID=562;	Created) Last sequence update) Last annotation update) t E (Colonization factor antigen	PRT; 360 AA.	ALIGNMENTS	ANT3_MOUSE MURF_BUCAI HAP_HAEIN VGLC_HSVEB UBPA_YEAST ETF2_SFVKA BXC1_CLOBO THBG_BOVIN SPHR_AMEPV WEB1_YEAST RN1_DROME YJK9_YEAST
SPKHNILI : SPIYNILI	h 36		rough ane EMB restricent in and isb-si	Gaastra W.; CFA/I fimbria	cFA/I	Enterobacteriales	I subunit			P32261 P57315 P45387 P123874 P53874 Q9q8y2 P18640 Q9tt36 P29815 P38968 Q9v7h4 P42945
മെ	0; 1; Gaps		ough a collaboration (e EMBL outstation - restrictions on its ent is in no way and for commercial isb-sib.ch/announce/	a W.; imbrial	fimbrial	ales;	nit E).			mus muscu buchnera haemophil equine he saccharid clostrid clostrid bos tauru amsacta m saccharom drosophil saccharom
60	1;		tion on . its way cial nce/	! ! !						culu a ap ilus ilus omyc obro dium cus moo omyc omyc

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-0157:H7 / EDL933 / ATCC 700927;

MEDLINE-21074935; PübMed-1120555;

Perna N.T., Plunkett G. III, Burland V., Mau B., Glasner J.D.,

Rose D.J., Mayhew G.F., Evans P.S., Gregor J., Kirkpatrick H.A.,

Posfai G., Hackett J., Klink S., Boutin A., Shao Y., Miller L.,

Grotbeck E.J., Davis N.W., Lim A., Dimalanta E.T., Potamousis K.,

Apodaca J., Anantharaman T.S., Lin J., Yen G., Schwartz D.C.,

Melch R.A., Blattner F.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TREJ_ECO57 STANDARD; PRT; 2660 AA.

@BX8V7; QBXZB9; QBX2CO;

28-FEB-2003 (Rel. 41, Created)

28-FEB-2003 (Rel. 41, Last sequence update)

28-FEB-2003 (Rel. 41, Last annotation update)

Hypothetical protein yeed.

23135 OR ECS2775/ECS2776.

Escherichia coli O157:H7.

Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
EMBL; AE005423; AAG57041.1; EMBL; AP002559; BAB36198.1; EMBL; AP002559; BAB36199.1;
                                                                                                                                                                                                                                                                                         Kuhara S., Shiba T., Hattori M., Shinagawa H.;
"Complete genome sequence of enterchemorrhagic Escherichia coli
o157:H7 and genomic comparison with a laboratory strain K-12.";
DNA Res. 8:11-22(2001).
                                                                                                                                                                                                                                                                                                                                                               STRAIN-0157:H7 / RIMD 0509952;
MEDLINE-21156231; PubMed-11258796;
Hayashi T., Makino K., Ohnishi M., Kurokawa Han C.-G., Ohtsubo E., Nakayama K., Murata Tida T., Takami H., Honda T., Sasakawa C., Curica T., Takami H., Honda T., Sasakawa C., Curica T., Sasakawa C., Curic
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. STRAIN-0157:H7 / R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nature 409:529-533(2001).
                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE INTIMIN/INVASIN FAMILY. CAUTION: Ref.2 sequence differs from that shown due frameshift in position 1315.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           г
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             L 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DGYSTNSSSLEIRFQDDNSKSDGKFYLKKINDDSKELVYTLSLLLAGKNLTPTNGQALNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of enterohaemorrhagic
 ALT_FRAME.
ALT_FRAME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia
                                                                                                                                                                                                                                                                                                                                                                                    a K., Ishii
T., Tanaka
                                                                                                                                                                                                                                                                                                                                                                 Ogasawara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 coli 0157:H7.";
                                                                                                                                                                                                                                                                                                                                                               Z
                                                                                                                                                                                                                                                                                                                                                                                  X 7
                                                                                                                                                                                                                                    ţ
                                                                                                                                                                                                                                                                                                                                                                 Yasunaga T.,
                                                                                                                                                                                                                                                                                                                                                                                    Yokoyama K.,
Tobe T.,
                                                                                                                                                                                                                                      α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
 RN OCC
                                                                                                                                                                                                                  RESULT 3
SAG1_YEAST
                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hypothetical DOMAIN 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
DOMAIN
                 NCBI_TaxID=4932;
                                                                                                                                                                                                 SAG1_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                 995
                                                                                                                                                                                                                                                                                                                           328
                                                                                                                                                                                                                                                                                                                                                                                                     288
                                                                                                                                                                                                                                                                                                                                                                                                                                         952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8O;
```

```
01-FEB-1991 (Rel. 17, Created)
01-NOV-1995 (Rel. 32, Last sequence upda
15-SEP-2003 (Rel. 42, Last annotation up
Alpha-agglutinin precursor (AG-alpha-1).
SAG1 OR AGAL1 OR YJR004C OR J1418.
                                     Saccharomyces cerevisiae (Baker's Eukaryota; Fungi; Ascomycota; Sacc Saccharomycetales; Saccharomycetae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; FAULT SMART; SM00634; BID_1; 16.
SMART; SM00089; PKD; 8.
SMART; SM00089; PKD; Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR003344; Big_1.
InterPro; IPR003535; Intimin.
InterPro; IPR003601; PKD_domain.
Pfam; PF02369; Big_1; 16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                              GNGVDETTLTATVKDP-FDNVVKNLSVVFRTS 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KGMTDSNGTAIASLTGTLAGTHMITARLANSNVSDTQPMTFVADKDRAVVVLQTSKAEII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RELQIKGY-KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SAKIATISASNNGVIANENAANTVSVNVADEGS---NPINDHTVTFAVISGSATSFNNQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY---SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPG--RLQLDAKVENPEAGQYMGNINVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KSLTPTNGTSL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----TNTAPLHMTATLQDKNGNPLKDKEITFSVPND---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RNSVDMCFYDGYSTNSSSLE----IRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NEVVADGNDSATMTATVRDAKGNLLNDVKVTFNVNSAAAKLSQTEVNSHD-----GIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      738
840
931
1042
11243
11243
11243
11548
11548
11548
11553
11751
11856
11963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AΑ;
                                        Ascomycota; Saccharo
; Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  834
929
11033
11132
11335
11439
11552
11750
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
11875
1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SLKNGDYTVTASVSSGSQANQQVIFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     280062 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66;
.141b.
Ker's yeast).
Ker's yeast).
Ker's yeast).
Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 120; DB
Pred. No. 0.62
56; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01EB92A08F5C09D2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                           650
                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NIADAASLETNWNRITAVTMPEISVPVLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
.62;
                                                                                                                                                                                                                                                                                        ΑA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -VASRFSISNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
```

```
DOMAIN
REPEAT
REPEAT
DISULFID
DISULFID
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                         9,9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  with atypical disulfides.";

J. Biol. Chem. 270:26168-26177(1995).

-i- FUNCTION: CELL SURFACE GLYCOPROTEIN PROMOTING CELL-CELL CONTACT TO FACILITATE MATING. SACCHAROMYCES CEREVISTAE A AND ALPHA CELLS EXPRESS THE COMPLEMENTARY CELL SURFACE GLYCOPROTEINS A-AGGLUTININ AND ALPHA-, RESPECTIVELY, WHICH INTERACT WITH ONE ANOTHER TO PROMOTE CELLULAR AGGREGATION DURING MATING.

-i- SUBCELLULAR LOCATION: Attached to the membrane by a GPI-anchor
                                                                                                                                                                                                                                                                                                 EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the EUropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chen M.-H., Shen Z.-M., Bobin S., Kahn P.C., Lipke P.N.; "Structure of Saccharomyces cerevisiae alpha-agglutinin. Evidence a yeast cell wall protein with multiple immunoglobulin-like domair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  de Haan M.
Submitted
                                                                                                                                                                                         ABL; M28164; AAA34477.1; -.

MBL; X16861; CAA34752.1; -.

MBL; X87611; CAA60926.1; -.

MBL; X87611; CAA60926.1; -.

MBL; Z49504; CAA89526.1; -.

IR; S22835; S22835.

SGD; S00007764; SAG1.

GO; GO:0009277; C:cell wall (sensu Fungi); IDA.

GO; GO:0009275; P:cell adhesion receptor actlyity; IMP.

GO; GO:0000752; P:agglutination during conjugation with cel

GO; GO:0000752; C:agglutination during conjugation with cel

The contraction of the cell adhesion; Signal; GPI-anchor; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Purification of the inducible alpha-agglutinin of S. cerevisiae molecular cloning of the gene."; FEBS Lett. 255:290-294(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lipke P.N., Wojciechowicz D., Kurjan J.;
"AG alpha 1 is the structural gene for the Sacalpha-agglutinin, a cell surface glycoprotein interactions during mating.";
Mol. Cell. Biol. 9:3155-3165(1989).
                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                 Glycoprotein;
                                                                                                                                                                        PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-S288c
de Haan M., S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-96064684;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-90005993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-90014768; PubMed-2677666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lauser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Probable).
INDUCTION: BY EXPOSITION TO PHEROMONE (
OPPOSITE MATING TYPE CELLS (TYPE A).
PTM: N-GLYCOSYLATED AND O-GLYCOSYLATED.
SIMILARITY: TO C.ALBICANS ALS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288c / FY1679;
M., Smits P.H.M.
d (MAY-1995) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tanner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYDRATE-LINKAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=7592821;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=2676603
W.;
  423
378
423
114
300
79
109
135
248
                                                                                                                                                        617
650
350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         h.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Grivell L.A.;
N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL/GenBank/DDBJ
                                                                                                REMOVED IN MATURE FORM (POTENTIAL). ACIDIC REGION, PROBABLY IMPORTANT IN BINDING TO AGGLUTININS OF TYPE A CELL 2 X 40 AA TANDEM REPEATS.

1.
2.
                                                                                                                                                                                     ALPHA-AGGLUTININ.
              (GLCNAC.
(GLCNAC.
(GLCNAC.
  (MAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SITES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (A-FACTOR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Saccharomyces
ein involved in
٠...
دددد
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DISULFIDE
                           (POTENTIAL).
(POTENTIAL).
                                                                                                                                         OF TYPE A CELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SECRETED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n
                                                                                                                                                                                                                            cellu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cerevisiae
n cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BY THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                    Š
                                                                                                멍
                                                                                                                         δõ
                                                                                                                                                     밁
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
  RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  САВОНУД
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
LIPID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
                                                                                                336
                                           396
                                                                      305
                                                                                                                                                                                                                                                                                               140
                                                                                                                                                                                                                                                                                                                             128
                                                                                                                            266
                                                                                                                                                        276
                                                                                                                                                                                   243
                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                                                                                                                                   89
                                                                                                                                                                                                                                                                                                                                                                                                            44
                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                           IYSTDSNITVGTDIHTTSEVISDVETISRETASTVVAAPTSTTGWTGAM
                                                                      SLETNWN---
                                                                                                                                                                                                                                                                                                                                                    GACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNC-PSGLTLNSA
                                                                                                                                                                                                                                                                                                                                                                                 SMPHYYRIKLLNSSQTATISLADGTEAFKCYVSQQAAYLYENTTFTCTAQNDLSSYNTID
                                                                                                                                                                                                                                                                                                                                                                                                 SSP---KHNILNNHITA-------YSESHTLYDRWTFLC----LSSHNTLN
                                                                                                                            YLRKINDDTKEI --- AYTLS ---
                                                                                                                                                        WVNALQSLPANVNTIDHALEFQYTCLDTIANTTYATQFSTTREFIVYQGRNLGTASAKSS
                                                                                                                                                                                                                                        LTDKGNIQI-------WLPQFKSDARVDLNLRPTGGGTYIGRN---SVDMCFYDG---
                                                                                                                                                                                                                                                                     HSGRSTGYGSFESYHLGMYCPNGYF----LGG
                                                                                                                                                                                                                                                                                              HFNCNKNAASGASLYL--YIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIK
                                                                                                                                                                                                                                                                                                                           GSITFSLNFSDGGSSYEYEL----ENAKFFKSGPMLVKLGNQMSDVVNFDPAAFTENVF
                                                                                                                                                                                                                                                                                                                                                                                                                                       ILWLFSLALASAININDITESNLEITPLTANKQPDQGWTATFDFSIADASSIREGDEFTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILFIFTLFFSSVL----FTFA-----VSADKIPG------DESITNIFGPRDRNE---
                                                                                                 FISTTTDLTSINTSAYSTGSISTVETGNRTTSEVISHVVTTSTKLSPTATTSLTIAQTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DCSSVQVYSSNDFNDWWFPQSYNDTNADV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            O-LINKED (MAN...)
O-LINKED (GLONAC...) (I
N-LINKED (GLONAC...) (I

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 0.29
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 114;
Pred. No. 0.
                                                                    -RITAVTMPEISVPVLCWPGRL
                                                                                                                                                                                                            -----TCFGSNLWITLDEKLYDGEML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .29;
                                                                                                                                                                                  YSTNSSSLE--IRFQDNN--PKSDGKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                            -LLLAGKSLTPTNGTSLNIADAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                     -DYDSSNNVDL-
```

182

67 80 127

225

```
DR FTT FTT FTT FTT
                                                                                                                                                                                                                                                                                                                                                                                 CCCCCCCCCCRFFFAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-97251358; PubMed=9097040;
A ITOh T., Aiba H., Baba T., Fujita K., Hayashi K., Inada T.,
Isono K., Kasai H., Kihura S., Kitakawa M., Kitagawa M.,
A Isono K., Kasai H., Kihura S., Kitakawa M., Kitagawa M.,
A Makino K., Miki T., Mizobuchi K., Mori H., Mori T., Motomura K.,
A Makade S., Nakamura Y., Nashimoto H., Nishio Y., Oshima T.,
A Nakade S., Nakamura Y., Nashimoto H., Nishio Y., Oshima T.,
A Nakade S., Nakamura Y., Nashimoto H., Nishio Y., Oshima T.,
A Nakade S., Nakamura Y., Nashimoto H., Nori T.,
A Saito N., Sampei G., Seki Y., Sivasundaram S., Tagami H.,
A Takeda J., Takemoto K., Wada C., Yamamoto Y., Horiuchi T.;
A 460-kb DNA sequence of the Escherichia coli K-12 genome
corresponding to the 40.1-50.0 min region on the linkage map.";
DNA Res. 3:379-392(1996).
DNA Res. 3:379-392(1996).
DNA Res. 3:379-392(1996).
DNA Res. 3:MILARITY: EDLONGS TO THE INTIMIN/INVASIN FAMILY.
                                                                                                                                                                                           InterPro; IPR003344; Big_1.
InterPro; IPR003535; Intimin.
InterPro; IPR002482; Lysm.
InterPro; IPR002482; Lysm.
InterPro; IPR000601; PKD_domain.
Pfam; PF02369; Big_1; 13.
PRINTS; PR01369; INTIMIN.
SMART; SM00634; BID_1; 13.
SMART; SM00639; PKD; 6.
SMARR; SM00089; PKD; 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YEEJ_ECOLI
P76347; P94750;
             DOMAIN
DOMAIN
DOMAIN
DOMAIN
DOMAIN
                                                                                                               DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Exthe European Bioinformatics Institute. There are no restrained to the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN-K12 / MG1655;
MEDLINE-97426617; PubMed-9278503;
Blattner F.R.; Plunkett G. III, Bloch C.A., Per Riley M., Collado-Vides J., Glasner J.D., Rode Riley M., Collado-Vides J., Glasner J.D., Rode
                                                                                                                                                                                                                                                                                                                        EMBL; AE000289; AAC75042.1; ALT_INIT.
EMBL; D90837; BAA15800.1; -.
EMBL; D90836; BAA15799.1; ALT_INIT.
EcoGene; EG13378; yeeJ.
                                                                                                                                                                                                                                                                                                                                                                                       modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
  DOMAIN
                                                                                                                                           DOMAIN
                                                                                                                                                        DOMAIN
                                                                                                                                                                        DOMAIN
                                                                                                                                                                                    Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "The complete genome sequence of Escherichia coli K-12."; Science 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gregor J., Davis N.W., Kirkpatrick H.A.,
Mau B., Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-FEB-2003 (Rel. 41, Creat
28-FEB-2003 (Rel. 41, Last
28-FEB-2003 (Rel. 41, Last
Hypothetical protein yeeJ
YEEJ OR B1978.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                      non-profit institutions as long
                                                                                   1042
1146
1246
1351
                                                       1449
1554
                                                                                                                                         1 protein;
738 834
840 931
932 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                             1237
1350
                                                                                                                           834
931
1033
1137
                                                                                                                                                                                  Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
 BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
BIG-1
                                                                                                                                                                                 Compl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
3. 3. 5. 6. 6. 7. 110 110 112 113
                                                                                                                                                                                 lete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2358
                                                                                                                                                                                 proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goeden M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                      as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perna N.T., Burlode C.K., Mayhew
                                                                                                                                                                                                                                                                                                                                                                                                                                      its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  collaboration
L outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ×.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                      in
                                                                                                                                                                                                                                                                                                                                                                                                                                      no
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                      way
```

```
ALD DEFINITION OF THE PROPERTY OF THE PROPERTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
GAS3_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAS3_YEAST
Q03655;
Q1-NOV-1997
Q1-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
SEQUENCE
    This
                                                                                                                                                                                                                                                                                                            Bowman S., Churcher C.M., Badcock K., Brown D., Chillin Connor R., Dedman K., Devlin K., Gentles S., Hamlin N., Jagels K., Lye G., Moule S., Odell C., Pearson D., Raja Rice P., Skelton J., Walsh S., Whitehead S., Barrell B. "The nucleotide sequence of Saccharomyces cerevisiae ch
                                                                                                                                                                   MEDLINE=20529944; PubMed=11079560; Pardo M., Ward M., Bains S., Molina Nombela C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAS3 protein precursor.
GAS3 OR YMR215W OR YM8261.09
                                                                                  Electrophoresis 21:3396-3410(2000)
-!- SUBCELLULAR LOCATION: Attached
                                                                                                                            "A proteomic approach wall biogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Fungi; Ascomycota; Saccharor Saccharomycetales; Saccharomycetaceae;
                                         -1- SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=9169872;
                                                                                                                                                                                                                                                                           Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-S288c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saccharomyces cerevisiae (Baker's
                                                                                                                                                                                                                                      DENTIFICATION
                                                                                                                       biogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1055
                                                                                                                                                                                                                                                                                                      nucleotide sequence
                                                                 (Potential).
      SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                                                                                                           387:90-93(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                FROM N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GNGVDETTLTATVKDP-SNHPVAGITVNFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSYLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY----SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPG---RLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KSLTPTNGTSL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NEVVADGNDSVTMTATVRDAKGNLLNDVMVTFNVNSAEAKLSQTEVNSHD-----GIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KGMTDSNGVAIASLTGTLAGTHMIMARLANSNVSDAQPMTFVADKDRAVVVLQTSKAEII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----TNTAPQYMTATLQDKNGNPLKDKEITFSVPND----VASKFSISNGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RNSVDMCFYDGYSTNSS----SLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RELQIKGYKQL-LFKSYNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SAKIATLSASNNGVLANENAANTVSVNVADEGS----NPINDHTVTFAVLSGSATSFNNQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105
2358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 35, (Rel. 35, Rel. 42,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                          AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                         Belongs to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Þ
  entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105 S -; 248599 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.8%;
20.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SLKNGDYRVTASVSSGSQANQQVNFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence up
                                                                                                                                               for
    is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
copyright.
                                                                                                                                               the study
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65;
                                           the GAS1 family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 109;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saccharomycotina; Saccl
cetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------NIADAASLETNWNRITAVTMPEISVPVLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               > G (IN REF. 2).
232249750BF631ED CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    yeast).
                                                                                    ç
                                                                                                                                                                                         .
X
    ij
                                                                                                                                               of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  524
                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
    is
                                                                                                                                               Saccharomyces
                                                                                                                                                                                         Blackstock W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
  produced
                                                                                    membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2358;
                                                                                                                                                                                                                                                                                                                                                                             Chillingworth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                            n N., Hunt S.,
Rajandream M.A.,
                                                                                  þу
  through
                                                                                                                                                                                                                                                                                                                     chromosome
                                                                                                                                               cerevisiae
                                                                                    þ
                                                                                                                                                                                           Gil
                                                                                    GPI-anchor
                                                                                                                                                                                           ი
    þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90;
      collaboration
                                                                                                                                                                                                                                                                                                                                                                                          1 T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                    cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ᅷ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              793
```

EMBL

outstation

```
RESULT YDEOLEC PORT 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D T 1 D 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                     STRAIN-K12 / MG1655;
MEDLINE-97426617; PubMed-9278503;
Blattner F.R., Plunkett G. III, Bloch C.A.,
Riley M., Collado-Vides J., Glasner J.D., Rc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Z49809; CAA89930.1; PIR; S55097; S55097.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                   Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                               Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPLUYEAST-2DPAGE; Q03655;
                                                                                                                                                                                                         NCBI_TaxID=562
                                                                                                                                                                                                                                        Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                 YDEQ OR B1502.
                                                                                                                                                                                                                                                                                                                                                         Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YDEQ_ECOLI
P77588;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF03198;
                                                                                                                                                                                                                                                                                                                                                                                        16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                   16-OCT-2001
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30; GO:0009277; C:cell wall interPro; IPR004886; GAS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S0004828; GAS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EISVPVLCWPGRLQLDAKVENPEAGQYMGNI-NVTFTPS 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YIGRNSVDMC-----FYDGYSTNSSSLE-----IRFQDNNPKSDGK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SSSTGSSSSTG----SSSASSSSKSKGVGNIVNVSFSQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSD-ARVDLNLR----PTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GYDKLNSTFEDAVIP----LIFSEYGCNKNTPRTFDEVSEGLY---GGLKNVFSGGL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GYKQL--LFKSVNCPSGLTLNSAHFNCNKNAA---SGASLYLYIPAGELKNLPFGGIWDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTFNYTIKNNKDDT--ISATISYDKA-NSLNELDVTATTVAKSASTSQSSSRSLTSSTSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EISSDSIYKCDNSAITNIYSGFGTNNFTLPSQPAEIANMIEYGVNGTNT-GKILTDYAVP
                                                                                                                                                                                                                                                                                                                                                         1 (Rel. 40, Create
1 (Rel. 40, Last:
1 (Rel. 40, Last:
1 (Rel. 40, Last:
al fimbrial-like;
                                                                                                                                                                                                                                                                                               coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---VYEYTEEANNYGL----VKLDDSGSL-----TYKDDFVNLESQLKNVSLPTTKES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 458
201
269
269
350
385
404
422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNR-ITAVTMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Swiss Institute of Bioinformatics and t Bioinformatics Institute. There are no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Membrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 524
496
201
269
350
385
404
402
504
                                                                                                                                                                                                                                     teria; Gammaproteobacteria;
Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.78;
24.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
Kirkpatrick H.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GPI-anchor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ¥.
                                                                                                                                                                                                                                                                                                                                                   sequence update)
annotation update)
protein ydeQ precu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (sensu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 108; DB Pred. No. 0.64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SER-RICH.
N-LINKED (
N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAS3 PROTEIN.
REMOVED IN MATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3A2BED0BD3ED8690 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fungi);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                         precursor
Goeden M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
                                 Rode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDA.
                           Perna N.T., Burland V
ode C.K., Mayhew G.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96;
                                                                                                                                                                                                                                                                   Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FORM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228
```

```
DAC
                                                                    RESULT 7
                                                                                                           밁
                                                                                                                               δÃ
                                                                                                                                                            밁
                                                                                                                                                                                     Q
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                     ALYS_ENTFA
                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
ALYS_ENTFA
P37710;
01-OCT-1994
15-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-97251357; pubMed-9097039;
Alba H., Baba T., Fujita K., Hayashi K., Inada T., Isono K.
Kasai H., Kashmoto K., Kinura S., Kitakawa M., Kitagawa M.
Makino K., Miki T., Mizobuchi K., Mori H., Mori T., Motomur
Makade S., Nakamura Y., Nashimoto H., Nishio Y., Oshima T.,
Sampei G., Seki Y., Sivasundaram S., Tagami H., Takeda J.,
Takemoto K., Takeuchi Y., Wada C., Yamamoto Y., Horiuchi T.
*A 570-kb DNA sequence of the Escherichia coli K-12 genome
corresponding to the 28.0-40.1 min region on the linkage ma
DNA Res. 3:363-377(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mau I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hypothetical protein; SIGNAL 1 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a continuous the Swiss Institute of Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00419; Fimbrial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EcoGene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SIMILARITY: TO TYPE-1 FIMBRIAL SUBUNITS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Science
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B., Shao 1., e complete genome sequence e complete genome sequence 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; AE000247; AAC74575.1; -.; D90792; BAA15175.1; -.; D90793; BAA15183.1; -. A64904; A64904.
                                                                                                           240
                                                                                                                                    273
                                                                                                                                                               201
                                                                                                                                                                                          213
                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                             173
                                                                                                                                                                                                                                                                                                 114
                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                            64
                                                                                                                                                                                                                                                                                                                                                     55
                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                         w
                                                                                                                                                                                                                                                                                                                                                                                                                                   75; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4904; A64904.
; EG13799; ydeQ.
o; IPR000259; Fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    an
                                                                                                           ATKASGVGVTLMRNGKILATGENVSLGTVNKSKVPLGLSATYGQTGNKVSAGTVQSV
                                                                                                                                                               GSAEIPL --
                                                                                                                                                                                    SDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIND 272
                                                                                                                                                                                                                   VVIKAGEVIARIHMYKIATLGSGNPRNFTWNIISNNNVVMPTGGCTVDSRNVTVDLPDFP
                                                                                                                                                                                                                                                                                                 ELQIKGYK-QLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD
                                                                                                                                                                                                                                                                                                                                           ITAYSESHTLYDRMTFLCLSSH-NTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKR 113
                                                                                                                                                                                                                                                                                                                                                                                                       KILF-IFTLFFSSVLFTFAVSADKIPGDESI----TNIFGPRDRNESSPKHNI---LNNH
                                                                                                                                   DTKEIAYTLSLLLAGK------SLTPTNGTSLNIADAASLETNWNRITAVTMPEI
                                                                                                                                                                                                                                            ATLK-----LRVKRRYSETYGT-----YTINITIK------LTDKGNIQIWLPQFK
                                                                                                                                                                                                                                                                       --SLQSYKGSLYWNNVTYPFPLTTNTNVLDIGDKTPMPLPLKLYI---
                                                                                                                                                                                                                                                                                                                            ISCWNDYGGWYD-----TDHINLVQG-----SAFAG---
                                                                                                                                                                                                                                                                                                                                                                              KVLFGIYLLLMAGKVFAFSCNVD----GGSSIGAGTTSVYVNLD-PVIQPGQNLVVDLSQH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  equires a license agreement (See http://www.isb-sib.ch/announce/email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       304 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       304 I
32069 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fimbrial.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fimbria; Signal; Complete proteome
                                                                                                                                                               -GVYCS-SEQKLSFYLSGATTDSSRQV-FANTAP
                                                                                                                                                                                                                                                                                                                                                                                                                                  51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYPOTHETICAL FIMBRIAL-LIKE PROTEIN; 8153C86E3087D99A CRC64; .
                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 107; DB Pred. No. 0.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of
f
                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia
                                         737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        There are no restrictions ng as its content is in
                                         Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                   125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              coli K-12.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 304;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Motomura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X 7
                                                                                                                                                                                                                                                                       ----TPVGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saito
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Itoh
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Τ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          z
                                                                                                           296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                               Ġ
                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                 172
                                                                                                                                                                                                                   200
                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                         54
                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                                   19;
```

(Rel.

30, 42,

Last Created)

sequence

update)

```
DESCRIPTION OF THE PROPERTY OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DE RAPERTO RESERVATION DE LA COMPANSION 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
SERAIN-VS83 / ATCC 700802;
MEDLINE-22550857; PubMed-12663927;
Medline-22550857; PubMed-12663927;
Paulsen I.T., Banerjei L., Myers G.S.A., Nelson K.E., Sesi Paulsen I.T., Banen M., Gill S.R., Heidelberg
                                                      CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002901; Amidase_4. InterPro; IPR002482; Lysm. Pfam; PF01832; Amidase_4; 1. Pfam; PF01476; Lysm; 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tettelin H., Dodson R.J., Umayam L., Brinkac L., Beanan M., Daugherty S., DeBoy R.T., Durkin S., Kolonay J., Madupu R., Nelson W., Vamathevan J., Tran B., Upton J., Hansen T., Shetty J., Khouri H., Utterback T., Radune D., Ketchum K.A., Dougherty B.A., Fraser C.M., "Role of mobile DNA in the evolution of vancomycin-resistant retracescory."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Firmicutes; Lactobacillales; Enteroco NCBI_TaxID=1351;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00257; LYSM; 6.
SMART; SM00047; LYZ2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; M58002; AAA67325.1; -. EMBL; AE016949; AAO80613.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Enterococcus faecalis.";
Science 299:2071-2074(2003).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Cloning, sequencing, and expression Streptococcus faecalis autolysin."; J. Bacteriol. 173:5619-5623(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE-91358349; PubMed-1679432;
Beliveau C., Potvin C., Trudel J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EF0799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-SEP-2003 (Rel. 42, Last annotation update)
Autolysin precursor (EC 3.2.1.-) (Peptidoglycan hydrolase)
(Beta-glycosidase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: BELONGS TO FAMILY 73 OF SIMILARITY: Contains 6 Lysm repeats.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBCELLULAR LOCATION: Secreted (Probable).

DOMAIN: LYSM REPEATS ARE THOUGHT TO BE INVOLVED IN PEPTIDOGLYCAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FUNCTION: Hydrolyzes the cell wall of E.faecalis M.lysodeikticus. May play an important role in company of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and cell separation. SUBCELLULAR LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A38109; A38109.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  division;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EF0799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Glycosidase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363
431
499
567
533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ROT entry is copyright. It is produced through Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Septation; Repeat;
                                                                                                 405
473
541
609
675
737
737
737
7417
449
484
77025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteriolytic enzyme; Cell wall;
     WW.
                                           LYSM 1.
LYSM 2.
LYSM 3.
LYSM 4.
LYSM 5.
LYSM 5.
LYSM 5.
1 Y N 1
1 Y N 1
2 N -> Y N 1
3 N -> Y N 1
3 N -> Y N 1
4 N -> Y N 1
5 N N -> Y N 1
5 N -> Y N 1
6 N -> Y N 1
7 N -> Y N 1
7 N -> Y N 1
8 N -> Y 
                                                                                                                                                                                                                                                   AUTOLYSIN.
LYSM 1.
LYSM 2.
LYSM 3.
LYSM 4.
LYSM 5.
LYSM 6.
LYSM 6.
LYSM 6.
LYSM 6.
I (IN
A -> T (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
ABB16BD506AC7507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Signal.
                                                                                                                                                                                                             Asselin A.,
                                                                                                 (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Enterococcaceae; Enterococcus.
                                                                                                 REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLYCOSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bellemare
ichia coli
     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYDROLASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                is and cell wall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Seshadri R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tembl outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of (,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                growth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        way
```

```
AID DEFINITION OF THE PROPERTY OF THE PROPERTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
SYFB_LISIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 69
                                                                                                                                                                                                                                                                                                                                                                                                          Baguero F., Berche P., Bloecker H., Brandt P., Chakraborty T., Charbit A., Chetouari F., Couve E., de Daruvar A., Dehoux P., Domann E., Dominguez-Bernal G., Duchaud E., Durant L., Dussurg Entian K.-D., Fsihi H., Garcia-del Portillo F., Garrido P., Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jacks Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat Madueno E., Maitournam A., Mata Vicente J., Ng E., Nedjari H., Mordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purce Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A., Vazquez-Boland J.-A., Voss H., Wehland J., Cossart P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-SEP-2003 (Rel. 42, Created)
15-SEP-2003 (Rel. 42, Last sequence update)
15-SEP-2003 (Rel. 42, Last annotation updatte)
Phenylalanyl-tRNA synthetase beta chain (EC 6.
(Phenylalanine--tRNA ligase beta chain) (Phens)
PHET OR LINI185.
                                                                    This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-CLIP 11262 / Serovar 6a;
MEDLINE-21537279; PubMed-11679669;
                                                                                                                                                                                                                                                                                                                                                            Science 294:849-852(2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Glaser P., Frangeul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Listeria innocua.
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYFB_LISIN
                                                                                                                                                                                                                                                                                                                                                                                     "Comparative genomics of Listeria species.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=1642;
                                                                                                                     family. Subfamily 1. SIMILARITY: Contains 1 tRNA-binding
                                                                                                                                                                        SUBCELLULAR LOCATION:
SIMILARITY: Belongs to
                                                                                                                                                                                                                                                       SUBUNIT: Tetramer of
                                                                                                                                                                                                                                                                                CATALYTIC ACTIVITY: ATP + L-phenylalanine + tRNA(Phe) = diphosphate + L-phenylalanyl-tRNA(Phe).

COFACTOR: Binds 2 magnesium ions per tetramer (By simila
                                                                                                                                                                                                                               similarity).
                                                                 SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     560 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   312 R 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41 RNESSPKHNI-LNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LRKINDDTKEIA--YTLS-------LLLAGKSLTPTNGTSLNIADAASLETNWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIKSGDTLNKIAAQYGVSVANLRSWNGISGDLIFAGQKIIVKKGTSGNTGGSSNGGSNNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W-----NGISGDL-----IFVGQK---LIVKKGASGNTGGSNNGGSNNNQSGTNTYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGDTLNKIAAQYGVSVANLRSWNGISGDLIFVGQKLIVKKGA---SGNTGGSGSGGSNNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SGET -- NITLQF -- -- TEKRSL -- IKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RYATDPSYNAKLNNVITAY -- NLTQYDTPSSGGNTGGGTVNPGTGGSNNQSGTNTYYTVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -QSGTNTYYTVKSGDTLN-------KIAAQYG-----VSVANLRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacillales;
                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Buchrieser C
                                                                                                                                                                                                                                                       two alpha and
                                                                                                                                                                        Cytoplasmic o the phenyla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 100;
Pred. No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                           phenylalanyl-tRNA synthetase beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Listeriaceae; Listeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.1;
                                                                                                                                                                                                                                                       two beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rusniok C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (EC 6.1..
(PheRS).
                                                                                                                          domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۲.
and t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1.1
                                                                                                                                                                                                                                                       chains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Amend A.
                                                                                                                                                                                                                                                                             similarity)
                                                                                                                                                                                                                                                       (Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dussurget
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Purcell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jackson D.,
                outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                              chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94
```

Swiss

Institute

e f

Bioinformatics

the

ne EMBL outs restrictions

There

non-profit institutions as long and this statement is not removed

as its content

is

'n

in no way

```
RESULT 9
IGA4_HAEIN
ID 45386
AC P45386
DT 01-NOV
DT 01-NOV
DT 28-FEB
DE Immuno;
GN IGA.
                                                                                                                                                       Š
                                                                                                                                                                                    밁
                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFFIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                     IGA4_HAEIN
P45386;
01-NOV-1995
01-NOV-1995
28-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIGREAMS; TIGRO0472; pheT_bact; PROSITE; PS50886; TRBD; 1.
            Immunog Lobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pram;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Metal-binding; Magnesium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HAMAP; MF_00283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uminoacyl-tRNA synthetase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 interPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             listiList; LIN01648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; PF03483; B3_4; 1.
; PF03484; B5; 1.
;; PF03147; FDX-ACB; 1.
;; PF01588; tRNA_bind; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AH1580; AH1580.
                                                                                                                                    733
                                                                                                                                                                                                                                                                                                                                                                                      467
                                                                                                                                                                                                                                                                                                                                                                                                                                                              48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ed and this statement is not removed. Usage by and for commercial is requires a license agreement (See http://www.isb-sib.ch/announce/an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; IPR005146;
; IPR005147;
; IPR005121;
; IPR004532;
; IPR002547;
                                                                                                                                    QVIKEHGGNLLVDIELFDIFEGESLGENKKSLAYTLTFLDSERTL
                                                                                                                                                                                  HPAVEASYDLKETYVFEINVKALLDATKEKVVYHPIPRYPEMTRDLALLVDKDTDHATIS
                                                                                                                                                                                                          TPTNGTSLNIADAASLETNWNRITAVTMPEISV-PVLCWP-----
                                                                                                                                                                                                                                  QKTPKPVDFFVLKGIVEGLVNKLGIEAELHWKQIEKEELHPGRTASIQLEGKEIGYLGAL
                                                                                                                                                                                                                                                             DNNPKS---
                                                                                                                                                                                                                                                                                   RTSIVPQLIRSASYNIARKNMDVALYEMGTVFYATEGDNLPIEQEHLAGLITGNWHTADW
                                                                                                                                                                                                                                                                                                           DLNLRP---TGGGTYIGRNSVDMCFYD----GYSTNSSSLEIRFQ-------
                                                                                                                                                                                                                                                                                                                                    GGLSDSQKARRVMRAYLEGAGLNQALTYSLTSKKDATRLALSDEKTVALSMPMSEEHSHL
                                                                                                                                                                                                                                                                                                                                                            GGIWDATLKLRVKRRYSETYG-----TYTIN-----ITIKLTDKGNIQIWLPQFKSDARV
                                                                                                                                                                                                                                                                                                                                                                                     ADILEEVARIYGYDEI --- PVTLPATSTT -----
                                                                                                                                                                                                                                                                                                                                                                                                            RSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPF
                                                                                                                                                                                                                                                                                                                                                                                                                                     NRILGTEI-SLSEIETIFDRLGFVLEVKEDTLIIEVPTR-----RWDITIE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                             HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           proteome.
       (Rel. 32, Created)
(Rel. 32, Last sequence update)
(Rel. 41, Last annotation updat
lin A1 protease precursor (EC 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      802 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      462
468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tRNA_bind;
                                                                         STANDARD;
                                                                                                                                                          -GRLQLDAKVENPEAGQYMGN-----INVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.
6; B3_4.
7; B5.
1; Fdx-AntiCB.
2; PheT_bact.
7; tRNA_bind.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155
462
468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.2%;
17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RNA-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .•
                                                                                                                                                                                                                                                           -----DGKFYLRKINDDTKEIAYTLSLLLAGK----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRNA-BINDING.
MAGNESIUM (BY SIMILARITY).
MAGNESIUM (VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 99; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MAGNESIUM (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY)
                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D75802193964D7D0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    blosynthesis; Ligase;
ing; tRNA-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No. 5
          on update)
                                                                        1849
            3.4.21.72)
                                                                        Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132; Indels 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 802
           (IGA1
                                                                                                                                    777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                           SL
                                                                                                                                                                                                                                                                                                                                                                                                            167
                                                                                                                                                                                                                                   672
                                                                                                                                                                                                                                                                                   612
                                                                                                                                                                                                                                                                                                                                    552
                                                                                                                                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                           329
                                                                                                                                                                                                                                                                                                           255
                                                                                                                                                                                                                                                                                                                                                                                                                                      466
```

```
Ş
                                        В
                                                                    QΥ
                                                                                                 В
                                                                                                                        δÃ
                                                                                                                                                       멍
                                                                                                                                                                               Ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                      PROPEP
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                    SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "A comparative genetic study of serologically influenzae type 1 immunoglobulin Al proteases. J. Bacteriol. 174:2913-2921(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration -
                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                               Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PR00921; IGASERPTASE.
TIGRFAMS; TIGR01414; autotrans_barl; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEROPS; S06.001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; M87491; AAA24968.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   between the Swiss Institute of Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Poulsen K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=92234949; PubMed=1373717;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-NHTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pasteurellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUBCELLULAR LOCATION: Secreted.

DOMAIN: THE SIGNAL PEPTIDE GUIDES THE PRECURSOR TO THE PERIPLASMIC SPACE, AND THE CARBOXY-TERMINAL HELPER DOMAIN ASSOCIATES WITH THE OUTER MEMBRANE TO FORM A PORE FOR EXCRETION OF THE PROTEASE DOMAIN. THE HELPER DOMAIN IS THEN RELEASED BY AUTOPROTEOLYSIS (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRODUCING INTACT FC AND FAB FRAGMENTS.

CATALYTIC ACTIVITY: Cleavage of immunoglobulin A molecules certain Pro-!-Xaa bonds in the hinge region. No small molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: BELONGS TO PEPTIDASE FAMILY S6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              rPro; IPR006315; Autotranspor

rPro; IPR005546; Autotranspor

rPro; IPR000710; IgA_56;

rPro; IPR004899; Pertactin.

; PP03797; Autotransporter; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          substrates are known
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY)
                                                                                                 862
                                                                                                                                                       804
                 238
                                           897
                                                                       185
                                                                                                                           126
                                                                                                                                                                                                              754
                                                                                                                                                                                                                                                                                                                                                                                                                                      PF02395; IGA1; 1.
PF03212; Pertactin; 1.
                                                                                                                                                                                                                                         19
                                                                                                                                                                                                                                                                    . Similarity 76; Conserv
CFYDGYSTNSSSLEIRFODNN-PKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGT
                                                           ETYGTYTINITIKLTDKGNIQIWLPQFKSDA-RVDLNLRPTGGGTY-----IGR-NSVDM
|| | | : | : |: |: | : | : | : | : | | | | | | | : :
                                                                                                                                                     YTGYVTCHNSNLSEKALNSENP--TNLRGNVNLTENASETLGKANLEGTIQSIGTSQVNL
                                                                                                                                                                                                            FKATTMNVTGNASLYS-----GRNVA----NITSN-ITASNNAQVHIGYKTGDTVCVRSD
                                                                                                                                                                                                                            FAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSES--HTLYDRMTFLCLSS-
                                          TTYNTLTVN----SLSGNGSFYYWVDFTNNKSNKVVVNKSATGNFTLQVADKTGEPNHNEL
                                                                                                 KE-NSHWHLTGNS---
                                                                                                                          KSVNCPSGLTLNSAHFNCNK-NAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYS
                                                                                                                                                                                                                                                                                                                           1849
                                                                                                                                                                                                                                                                                                                                                                                              Serine protease; Transmembrane; Zymogen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Reinholdt J., Kilian
                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                 -HNT-LNGACPTSENPSSSSVSGETNIT--LQFTEKRSLIKRELQIKGYKQLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haemophilus.
                                                                                                                                                                                                                                                                                                                                      25
1021
1849
299
                                                                                                                                                                                                                                                                              5.2%;
                                                                                                                                                                                                                                                                                                                           202957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Autotransporter. IgA_S6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Autotransport.
                                                                                               -NVNQLNLTNG---HIHLNAQNDAN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gammaproteobacteria; Pasteurellales;
                                                                                                                                                                                                                                                                     56;
                                                                                                                                                                                                                                                                                                                         WW.
                                                                                                                                                                                                                                                                  Score 99; DB:
Pred. No. 16;
66; Mismatches
                                                                                                                                                                                                                                                                                                                                                  IMMUNOGLOBULIN A1 PROTEASE. HELPER PEPTIDE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of Bioinformatics
                                                                                                                                                                                                                                                                                                                                        PROBABLE
                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .×
..
                                                                                                                                                                                                                                                                                                                           79A7D018C7150AEA CRC64;
                                                                                                                                                                                                                                                                              DB
16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                              ۲.
                                                                                                                                                                                                                                                                    127;
                                                                                                                                                                                                                                                                                                                                                     (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMMUNOGLOBULIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             distinct Haemophilus
.";
                                                                                                                                                                                                                                                                                              Length 1849;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and the
                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                               Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       molecule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   outstation
                                                                                                 ---KV
                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                           953
                                                                     237
                                                                                                 896
                                                                                                                           184
                                                                                                                                                       861
                                                                                                                                                                                  125
                                                                                                                                                                                                                                        75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     its
```

```
멍
                                                              δã
                                                                                               밁
                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
YD93_ME
AC Q5
DT 15
DT 15
DT 16
DT 16
OS M6
OS M6
OS M6
 Ş
                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                      SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=9337999; PubMed=8688087;

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., FitzGerald L.M., Clayton R.A., Gocayne J.D.,

Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;

"Complete genome sequence of the methanogenic archaeon, Methanococcus"

Jannaschii.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Extreme Bioinformatics Institute. There are no restricted the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     METJA
                                                                                                                                                                                                                                                                                                                                                                                                    TIGR;
                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U67579; AAB994
PIR; H64473; H64473.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Science
                                                                                                                                                                                                                                                                                                                                                                       Hypothetical protein; TRANSMEM 4 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Archaea; Euryarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Methanococcus jannaschii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Methanocaldococcaceae; Methanocaldococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1998 (Rel. 36,
15-JUL-1998 (Rel. 36,
16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     258788;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7D93_METJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nypothetical protein MJ1393.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1012
                                                               140
    190
                                    166
                                                                                               110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           954
                                                                                                                                                                                                                                                                                                                                                                                                    мJ1393;
                                                                                                                              88
                                                                                                                                                             53
                                                                                                                                                                                            42
                                                                                                                                                                                                                                                                                          85;
                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        273:1058-1073(1996)
                                                                                                                                                                                           NESSPKHNILNNHITAYSESHTLYDRMTFLCLSSHNT-----LNG------ACPTSE
                                                                                                                                                                                                                                                           MNKILF - - - IFTLFFSSVLFTFAVSADKIP - - -
 YT---INITIKLTDKGNIQIW---
                                    YLNISRNVSA--
                                                              HFNCNKNAASGASLYLYIPAGE------LKNLPFGGIWDATLKLRVKRRYSETYGT
                                                                                           NLPNANTYIHIPILPNNSYVIIKFAIDKSITGVPLIINE----TYSDTKIPSERLSNWSV 165
                                                                                                                              N-PSSSS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPNDIQADAPSAQSNNEEIARVETP 1036
                                                                                                                                                                                                                          MRKLIFMALLMSLLFIGTVFGY----GDNGPLYVAYYEKYNITGNTTGDGLVSSTI-----
                                                                                                                                                           -ESITGYIVINN--TGTTINDTLYDVWVAVNISNNITGPEVYVNGTPKGVFIESSAPAYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLN--IADAASLETNWNRITAVTMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLFDASNATRNNLEVTLANGSVDRGAWKYKLRNVNG--RYDLYNPEVEKRNQTVDTTNIT 1011
                                                                                                                                                                                                                                                                                                                                                      608 AA;
                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB99403.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DSM 2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    M.JANNASCHII MJ1394 AND A.FULGIDUS AF2028
                                                                                                                                                                                                                                                                                                                                                      66768 MW;
                                                                                                                                                                                                                                                                                                       5.2%;
                                                                                                                           -VSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLN-SA
                                                                                                                                                                                                                                                                                                                                                                    Transmembrane; Complete proteome.
4 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Methanococci; Methanococcales;
                                -LPATDTPVSVIMTKYLSNDP----
                                                                                                                                                                                                                                                                                          68;
                                                                                                                                                                                                                                                                                                          Pred.
                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                     010FAF1C29F8C73C CRC64;
                                                                                                                                                                                                                                                                                          Mismatches
 ·-LPQFK
                                                                                                                                                                                                                                                                                                        No.
                                                                                                                                                                                                                                                                                                                       98.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Å
                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                        119;
                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                         -----GDESITNIFGPRDR
                                                                                                                                                                                                                                                                                        Indels 147;
-SDARVDLNLRPTGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions
                                                                                                                                                                                                                                                                                                                       608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methanococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a collaboration -
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J.D.,
                                                                                                                                                                                                                                                                                     Gaps
                                NNYGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                              189
                                                                                                                                                           109
 228
                                200
                                                                                                                                                                                           87
                                               B
              Q
                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЪ
```

```
RESULT 11
SP31_YEAST
ID 15-SEI
DT 01-FEE
DT 01-FEE
DT 01-FEE
DT 01-FEE
DT Sacche
OC STRAI
OC STRAI
OC STRAI
OC Sacche
OC STRAI
OC STRAI
OC Sacche
OC STRAI
OC SACCHE
O
                                                                                                                                              Query Match
Best Local S
Matches 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SP21_YEAST
P35209;
01-FEB-1994
01-FEB-1994
15-SEP-2003
                                                                                                                                                                                                                                                                          DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bowman S., Churcher C.M., Badcock K., Brown D., Chillingworth T., Connor R., Dedman K., Devlin K., Gentles S., Hamlin N., Hunt S., Jagels K., Lye G., Moule S., Odell C., Pearson D., Rajandream M.A., Rice P., Skelton J., Walsh S., Whitehead S., Barrell B.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces cerevisiae (Baker's yeast).

Eukaryota; Fungi; Ascomycota; Saccharomycotina; Sacciaromycetales; Saccharomycetaceae; Saccharomycetaceae;
                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "The nucleotide sequence XIII.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIINE-94186069; PubMed-8138180; Natsoulis G., Winston F., Boeke J.D.; "The SP110 and SP721 genes of Sacchar. Genetics 136:93-105(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPT21 protein.
SPT21 OR YMR179W OR YM8010.09.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN-S288c / ABS
                                                                                                                                                                                                                                                                                                                                                                             TRANSFAC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; L24436;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nature 387:90-93(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=9169872;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                              INSFAC; T04376; -.
); S0004791; SPT21.
GO:0006357; P:regulation of transcription from MAIN 127 144 ASP/GLU-RICH (ACIDIC).
MAIN 672 682 ASP/GLU-RICH (ACIDIC).
PUENCE 758 AA; 84697 MW; 7DB3FCF7EE996705 CRC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YEAST.
                                                                                                                                                                                                                                                                                                                                                                                                 ; Z49808; CAA899
S47866; S47866.
                                                  166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
  96
                                                                                                42
                                                                                                                                                   61;
                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYL
                                                  NISNKKGRVVNNQI----PEETLEVKLRFTKVITNLRTSGNNTTNSRISCLQMPSSL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LLAGKSLTPTNG-----TSLNIADAASLETNWNRITAVTMPEI--SVPVLCWPGRLQL
                                                                                                NESSPKHNILNNHITAYSESHTLYDRMTF-----LCLSSHNTLNGACPTSENPSSSSVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYT-----LSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TKEGPFLNASSGKYEIWYESANVSNKAS--SYYFNLTHVTIWAVNGSNPVILDPFNITL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YTNRTGTLMKY--GFAV----IFFEFNGTKSGTKI---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 28, Created)
(Rel. 28, Last seq
(Rel. 42, Last ann
                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       / AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REQUIRED FOR NORMAL TRANSCRIPTION AT A NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                             CAA89912.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAA35078.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                          5.2%;
21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence update)
annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of Saccharomyces
                                                                                                                                                                     Score 98;
Pred. No.
                                                                                                                                         Pred. No. 6;
; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions ng as its content is in
                                                                                                                                                                                                DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cerevisiae
                                                                                                                                                                                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cerevisiae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Usage
                                                                                                                                                95;
                                                                                                                                                                                              Length 758;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saccharomycetes;
                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                               POL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B.G.;
chromosome
                                                                                                                                                                                                                                                                                                                             Η
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EGIYATGYGGVSA
                                                                                                                                                                                                                                                                                                                          pro.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCI
                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  n no way
                                                                                                                                                                                                                                                                                                                          :.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 300
                                                  218
                                                                                                95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         258
```

```
RESULT 12
N133_YEAST
                                                              CCCCRTTAAAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                       Query Match
Best Local
            Matches
                                                                                                                                EMBL; X80066; CAA56372.1; EMBL; Z27116; CAA81633.1; EMBL; Z27116; CAA81611.1; EMBL; Z28307; CAA82161.1; PIR; S38160; S38160 SGD; S0001790; NUP133.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N133_YEAST
P36161;
O1-JUN-1994
O1-JUN-1994
28-FEB-2003
                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                        Remacha M.A., Revuelta J.L., Ballesta J.P.G., Jimenez A., del Remacha M.A., Revuelta J.L., Ballesta J.P.G., Jimenez A., del Remacha M.A., Revuelta J.L., Ballesta J.P.G., Jimenez A., del Remacha complete sequence of an 18,002 bp segment of Saccharomyces cerevisiae chromosome XI contains the HBS1, MRP-L20 and PRP16 ge and six new open reading frames.";

Yeast 10:231-245(1994).
                                                       GO; GO:0005643; C:nuclear pore; IDA.
GO; GO:0006406; P:mRNA-nucleus export; IMP.
GO; GO:0006999; P:nuclear pore organization and biogenesis;
Pfam; PF04044; Nupl33; 1.
Nuclear protein; Transport.
SEQUENCE 1157 AA; 133319 MW; C8BDBB7D709C5C08 CRC64;
                                                                                                60;
60;
60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Doye V., Wepf R., Hurt E.C.;
"A novel nuclear pore protein Nup133p with distinct roles in RNA transport and nuclear pore distribution.";
EMBO J. 13:6062-6075(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last septence update)
28-FEB-2003 (Rel. 41, Last annotation updat)
Nucleoporin NUP133 (Nuclear pore protein NU
NUP133 OR YKR082W OR YKR402.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-95112817; PubMed-7813444; Doye V., Wepf R., Hurt E.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomyces cerevisiae (Baker's yeast).

Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccl
Saccharomycetales; Saccharomycetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-JUXJR;
                                                                                                                                                                                                           or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                              -
                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-94262327; Pul
Garcia-Cantalejo J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                          SUBCELLULAR LOCATION: Nuclear pore complex.
                                                                                                                                                                                                                                                                                                                          FUNCTION: INVOLVED IN POLY(A)+ RNA TRANSPORT AND DISTRIBUTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       219
                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDDSVSKRFDFMLNKRKSTKKVSPGIATIAKKPASINI 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RVDLNLRPTGGGTYIGRNSVDMCFY-----DGYSTNSSSLEIRFQDNNPKSDGKFYLRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --- VGRRQTNPM---- PAPKAVRTQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INDD-TKEIAYTLSLLLAGKSLTPINGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --PSATLPFTPKSQSLFKTNQIK-----NSRNARTTITIN-----NTNSGT----
            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -NLKPNIANTGFPRNSIAHKIYLADRKTEANQQNNQHQNIAYEINTLQNDNTIQRTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=8203164;
J., Baladron V.,
                       5.28;
            43;
          Score 98; DB
Pred. No. 10;
43; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein NUP133).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1157
                                   DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Å
                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SLNI
            127;
                                 Length 1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
            Indels
                                                                                                                                                                                                                                                                                                                                   NUCLEAR PORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLPIW-
                                                                                                                                                                                                                                                                                                                                                                                             del Rey
                                                                                                                                                                                                                                                                        a collaboration
           94;
                                                                                                                                                                                                                                                                                                                                                                                        , Bou G.,
Pey F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    poly(A)+
           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              215
           21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDG2_
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDG2_PAEMA
P31835;
01-JUL-1993
                                                                                                                                            InterPro;
InterPro;
                      SMART;
                                                                                 Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAEMA
                                                                                                Pfam;
                                              PRINTS; PR00110; ALPHAAMYLASE ProDom; PD001568; CBD_4; 1.
                                                                                                          Pfam;
                                                                                                                                                                                              PIR; S26589; ALBSXI
HSSP; P43379; 1CDG
                                                                                                                                                                                                                                                                                                                                                                                   "Polypeptide activity.";
                                                                                                                                                                                                                                                                                                                                                                                                           Sugimoto
SIGNAL
                                                                                                                        InterPro;
                                                                                                                                   InterPro;
                                                                                                                                                                       InterPro;
                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUL-1993 (Rel.
01-JUL-1993 (Rel.
15-DEC-1998 (Rel.
                                                           am; PF00128; alpha-amylase; 1.
am; PF02806; alpha-amylase; 1.
am; PF02806; claha-amylase_C; 1.
am; PF00686; CBM_20; 1.
am; PF01833; TIG; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                    SM00642; Aamy; 1
SM00632; Aamy_C;
                                                                                                                                 IPR006047;
IPR002044;
IPR006046;
                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A., AND SEQUENCE T., Kubota M., Sakai S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HNILNNHITAY-----SESHTLYDRMTF-----LCLSSHNTLNGACPTSENP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSSSVSGE
Glycosyltransferase;
                                                                                                                                                                                                           ALBSXR.
                                                                                                                                                                                                                                                                                                                                                                                              possessing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
```

```
-1- MISCELLANEOUS: CGTASE MAY CONSIST OF TWO PROTEIN DOMAINS: THE ONE IN THE MAINO-TERMINAL SIDE CLEAVES THE ALPHA-1,4-GLUCOSIDIC BOND IN STARCH, AND THE OTHER IN THE C-TERMINAL SIDE CATALYZES OTHER ACTIVITIES, INCLUDING THE RECONSTITUTION OF AN ALPHA-1,4-GLUCOSIDIC LINKAGE FOR CYCLIZING THE MALTOOLIGOSACCHARIDE PRODUCED.

-1- SIMILARITY: BELONGS TO FAMILY 13 OF GLYCOSYL HYDROLASES, ALSO KNOWN AS THE ALPHA-AMYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent number GB2169902, 23-JUL-1986.
-!- CATALYTIC ACTIVITY: Degrades starch of a 1,4-alpha-D-glucosidic bond.
-!- COFACTOR: BINDS TWO CALCIUM IONS.
-!- SUBUNIT: Monomer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cyclomaltodextrin glucanotransferase precursor (EC: (Cyclodextrin-glycosyltransferase) (CGTase).
Paenibacillus macerans (Bacillus macerans).
Bacteria; Firmicutes; Bacillales; Paenibacillaceae; NCBI_TaxID-44252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DSS----SNSFTIFSTYRLNTFMESITDTKFKPKIFIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GKSLTPTNGTSLNIADAASLETNWNRITAVTM-PEISVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DMCFYDGYSTNSSSL-----EIRFQDNNPKSD--GKFYLRKINDDT-KEIAYTLSLLLA 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VVSLRNGPILGKGTRLVYIT---TNKGIFQTW--QLSA----TNSHPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SVNC-PSGLTLNS----AHFNCNKNAASGASLYLYIPAGELKNLPFG-GIWDATLKLR--
                                                                                                                                                                                                                                                                                                        IPR006589; Alp_amyl_cat_sub
IPR006048; Alpha_amyl_C.
IPR006047; Alpha_amyl_cat.
IPR002044; CBD_4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DVNIYEAILESLODLYPFAHGTLKIWDSHPLQDESSQLFLSSIYDSSCNETYYILSTIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -VKRRYSETY--GTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -LNCEPAGIVLSTNMGRIFFITIRNSMGKPQLKL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NDQDETGGLIIIKGSKAIYYEDINSINNLNFKLSEKFS---HELELPINSSGGEKCDLM-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YGLVNDHKKVYIWNIHSTQKDTPYITVPFRSDDNDEIAVAPRCILTFPATMDESPLALNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26, Created)26, Last sequence update)37, Last annotation update)
                                                                                                                                                                                                                                                                                   Glyco_hydro_13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cyclomaltodextrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ç
Calcium; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -TNITLQFTEKRSLIKRELQIK-----GYKQLLFK 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glucanotransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cyclodextrins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GKLLNKPFKLGIWSKIFNTNSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.4.1.19)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Paenibacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     formation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----KLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266
```

```
CCC PRINT REAL PRINT R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
RF1M_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOPETT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 65
                                                                                                                                                                                 (1)
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-93117110; PubMed=1475194;
MEDLINE-93117110; Rep M., Grivell L.A.;
Pel H.J., Maat M.J., Rep M., Grivell L.A.;
"The yeast nuclear gene MRF1 encodes a mitochondrial peptide
"The yeast nuclear gene MRF1 encodes a mitochondrial RNA splicing
               SEQUENCE FROM N.A.
STRAIN-S288C / FY1769;
MEDLINE-97197983; PubMed-9046099;
MEDLINE-97197983; PubMed-9046099;
Voet M., Defoor E., Verhasselt P., Riles L., Robben J., Vol
"The sequence of a nearly unclonable 22.8 kb segment on the
chromosome VII from Saccharomyces cerevisiae reveals ARO2,
TIP1, MRF1 genes and six new open reading frames.";
Yeast 13:177-182(1997).

-1- FUNCTION: MITOCHONDRIAL PEPTIDE CHAIN RELEASE FACTOR TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
ACT_SITE
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                        01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Peptide chain release factor 1, mitochondrial
MRF1 OR YGL143C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                            Eukaryota; Fungi; Ascomycota; Saccharomycotina;
Saccharomycetales; Saccharomycetaceae; Saccharom
                                                                                                                                                                                                                                                                                                                                                              Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomyc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P30775;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RF1M_YEAST
                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65;
     TERMINATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MTFLCLSSHNTLNGACPTSENPSSSSYSGETNITLQFTEKRSLIKRELQIKGYKQLLFKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KHMPQGWQKSYVSSIYSSANPVFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VENPEAGQ -- YMGNI --- NVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HH----NGGTDFSTTESGIYKNLYDLADINQNNNTIDSYLKESIQLWLNLGVDGIRFDAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YTLSLLLAGKSLTPT-NGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TDFSNLIAAAHSHNIKVVMDFAPNHTNPASSTDPSFAENGALYNNGTLLGKYSNDTAGLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ANNPTGAAFSSDHSN------LKLY------FGGDWQG-----ITNKINDGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LTSVSMSVGIALGAALPVWASP-DTSVNNKLNFS---TDTVYQIVTDRFVDG-----NS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28
28
230
230
230
523
523
256
256
256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               713
165
229
434
434
522
609
713
256
285
285
356
356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -LTGMGITALWISQPVENITAVINYSGVNNTAYHGYWPRDFKKTNAAFGSF
      Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIA
   TRANSLATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CYCLOMALTODEXTRIN GLUCANOTRANSFERASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY.
SIMILARITY.
SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5A287BCC4AAFE635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95.5;
No. 8
 IN RESPONSE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                413
                                                                                                                                                                                                                                                                                                                                            Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131;
                                                                                                                                                                                                                                                                                                                                                                                                             precursor
                                                                                                                                                                                                                                                                                                                                                          Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
   THE PEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                   Volckaert
the left a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      713;
                                                                                                                                                                                                                                                                                                                                                                                                             (MRF-1).
                    THAT
                                                                   RPL9A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85;
 DIRECTS
                                                                                                                                                                                                                                         chain
                                                                                     arm
                                                                                                   G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   231
RESULT 15
WAPA_BACSU
WAPA_BACSU
ID WAPA_B
AC Q07833
DT 01-OCT
DT 01-OCT
DT 28-FEB
DE Wall-aa
GN WAPA 0
OS Bactl1
OC Bacter
OX NCBI_T
RN [1]
                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                       δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein
TRANSIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---
                                                                                                                                                                                                                                                          297
                                                                                                                                                                                                                                                                                        351
                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                          304
                                                                                                                                                                                                                                                                                                                                                                                           188
                                                                                                                                                                                                                                                                                                                                                                                                                             250
                                                                                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90
```

```
WAPA_BACSU
Q07833;
Q1-OCT-1994
Q1-OCT-1994
28-FEB-2003
Bacillus subtilis.
Bacteria; Firmicutes;
NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; X60381; CAA42932.1; --
EMBL; X99960; CAA68219.1; --
EMBL; Z72665; CAA96855.1; --
PIR; S28602; S28602.
SGD; S0003111; MRF1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by ar entitles requires a license agreement (See http://www.isborsend an email to license@isb-sib.ch).
                                                           Wall-associated protein WAPA OR N17G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GO; GO:0005739; C:mitochondrion; IDA.
GO; GO:0003747; F:translation release factor
GO; GO:0006415; P:translational termination;
InterPro; IPR005139; PCRF.
InterPro; IPR000352; Pep_rel_factor_I.
Pfam; PF03462; PCRF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00472; RF-1; 1.
PROSITE; PS00745; RF_PROK_I; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TERMINATION CODONS UAA AND UAG.
SUBCELLULAR LOCATION: Mitochondrial.
SIMILARITY: BELONGS TO THE PROKARYOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               biosynthesis; Mitochondrion;
                                                                                                                                                                                                                                                                             RLTHIPS
                                                                                                                                                                                                                                                                                                                 NVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                             ASLETNWNRITAVTMPEI -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RLVNKLLP-----PHPFADKPSLLELRPGVGGIEAMIFTQNLLDM--YIGYA-NYRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGG----TYIGRNSVDMCFYDGYSTNSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VNKQKHYAKLSALTDTFIEYKEKLNELKSLQEMIVSDPSLRAEAEQEYAELVPQYETTSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CNK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TSTTTNSKSNGSIPTQYTELSPLLVKQAEKYEAELKD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SSSSVSGETN--ITLQFTEKRSLI-----KRELQIKGYKQLLFKSVNCPSGLTLNSAHFN
                                                                                                                                                                                                                                                                                                                                                       ---RTHTSTAAVVVLPQIGDESAKSIDAYERTFKPGEIRVDIMRASGKGGQHVNTTDSAV
                                                                                                                                                                                                                                                                                                                                                                                                                                   WKYRIISKNENESGSGIIDAILSIEEAGSYDRLRFEAGVHRVQRIPSTETKG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGK-----SLTPTNGTSLNIADA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         413
                                                                                               (Rel. 30, Created)
(Rel. 30, Last sequence up
(Rel. 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSE---TYGTYTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46770 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.0%;
                       Bacillales;
                                                                             precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 95; DB:
Pred. No. 4.7;
47; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ondrion; Transit peptide.
MITOCHONDRION (POTENTIAL).
PEEPIDE CHAIN RELEASE FACTOR
; AAAD4829748C7604 CRC64;
                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROKARYOTIC
                         Bacillaceae;
                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                             -SVPVLCWPGRLQLDAKVENPEAGQYMGN----I
                                                                                                                                                                               2334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 activity;
                         Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MITOCHONDRIAL RELEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -LDKDLSC-----GIHFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                                                                                                                                                                                                                                                                             350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78
                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             way
```

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its

There are no restrictions

```
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Alloni G.,
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Bourlist F., Ogasawara N., Moszer I., Albertini A.M., Brignell S.C., Brons S.,
RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Edani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Edani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Capita K.M., Dusterhoft A., Ehrlich S.D., Emmerson P.T.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Guiseppi G., Guy B.J., Haga K., Haiech J., Harwood C.R., Henaut A.,
RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Kunita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kunita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Moone D., O'Reilly M., Ogawa K., Ogiwara A., Oudega B., Park S.H.,
RA Moone D., O'Reilly M., Ogawa K., Ogiwara A., Oudega B., Park S.H.,
RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Sato T., Scanlan E., Schleich S., Schroeter R., Scoffone F.,
RA Sekiguchi M., Tamakoshi A., Tanaka T., Takahashi H., Takemaru K.,
RA Takeuchi M., Tamakoshi A., Tanaka T., Terpstra P., Tognoni A.,
RA Viari A., Wanters P., Wedler E., Wedler H., Weitzenegger T.,
Ra Winters P., Wala K., Yanamoto H., Yanane K., Yata K.,
RT Subtilius Becillus Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kunst F., vy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               containing the
                                                                                                                                                                          Nature 390:249-256(1997).

-I - FUNCTION: STILL UNKNOWN. NOT INVOLVED IN CELL MEMBRANE METABOLISM, -NOTLITY, SECRETION OR DIFFERENTIATION.

-I - SUBCELLULAR LOCATION: MEMBRANE-ASSOCIATED. MAY BE RELEASED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yoshida K.-I., Sano H., Seki S., Oda M., Fujimura M., Fujita Y.; "Cloning and sequencing of a 29 kb region of the Bacillus subtilis genome containing the hut and wapA loci."; Microbiology 141:337-343(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene encoding a 258
                                                                                                                                      +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Sequencing of a 65 kb region of the Bacillus subtilis genome containing the lic and cel loci, and creation of a 177 kb contig covering the gnt-sacXY region."; Microbiology 142:3113-3123(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-168 / BGSCIAl;
MEDLINE-97124196; PubMed-8969509;
Yoshida K., Sano H.,
Miwa Y., Fujita Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacillus subtilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-98044033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=168 / BGSC1A1;
MEDLINE=95219088; PubMed=7704263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mol. Microbiol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-93302506; PubMed-8316082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Molecular analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
           DOMAIN: HAS TWO LIGAND-BINDING DOMAINS; THE N-TERMINUS, HAS THREE 101 AA REPEATS WHICH ARE RESPONSIBLE FOR CELL WALL BINDING; THE C-TERMINUS CONSISTS OF TWO BLOCKS OF RESIDUES WITH A CONSERVED MOTIF REPEATED 31 TIMES: SIMILARITY: THE REPEATED MOTIF IN THE C-TERMINUS HAS SOME SIMILARITY TO THE REPEAT IN E.COLI RHS GROUP OF PROTEINS (RHSA-D)
                                                                                                                                                         NTO THE MEDIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8:299-310(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  is of
168:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=9384377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     kDa precursor two-domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             three major wall-associated proteins evidence for processing of the produc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seki S., Fujimura M., Yanai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ligand-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oteins of product of
                                                                                                       THREE
THE
```

```
밁
             δÃ
                                망
                                                Qy
                                                                                                     Query Match
Best Local S
Matches 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; L05634; AAA22883.1;
EMBL; D31856; BAA06656.1;
EMBL; D29985; BAA06260.1;
EMBL; D83026; BAA11683.1;
EMBL; Z99124; CAB15959.1;
                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
REPEAT
REPEAT
                                                                                                            REPEAT
REPEAT
                                                                                                                             REPEAT
REPEAT
                                                                                                                                               REPEAT
REPEAT
REPEAT
                                                                                                                                                                       REPEAT
REPEAT
                                                                                                                                                                                                                  REPEAT
REPEAT
                                                                                                                                                                                                                                          REPEAT
REPEAT
                                                                                                                                                                                                                                                                             REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                      REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                                                                                REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF02018; CBM_4_9; 1.
TIGRFAMs; TIGR01643; YD_re
Cell wall; Repeat; Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SubtiList; BG10797;
                                                                                                    SEQUENCE
                                                                                                                                                                                                REPEAT
                                                                                                                                                                                                                                  REPEAT
                                                                                                                                                                                                                                                            REPEAT
                                                                                                                                                                                                                                                                     REPEAT
                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                      REPEAT
                                                                                                                                                                                                                                                                                                               REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR;
                                                                                                                                                                                         REPEAT
                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SubtiList; BG10797; wapA.
InterPro; IPR003305; CBM_CenC
InterPro; IPR006530; YD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S32920; S32920.
                                                  29
                                                                          Similarity
SDTFVMSAYPTT-NYSASSQKWDAN
               SHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGL 134
                                                 DESITNIFGPRDRNESSPKHNILNN-----HITA----YSESHTLY----DRMTFLCLS
                                DSKLDELSGEVERSD-KVSYKLEKNEEGYLLHLTADENWLKDPERVYPVSIDPSTSLSVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Repeat; Signal;
                                                                   5.0%;
ilarity 22.1%;
Conservative
                                                                                                                                                                                                                                                                                      1646
                                                                                                    AA;
                                                                                                            2090
2112
2139
                                                                                                                                                                                                                                                                                                                                                                                                           2334
2334
869
605
736
                                                                                                                                                                                                                                            1148
1169
1193
1218
1218
1238
1238
1238
1738
1779
17730
                                                                                                                                                                                                                                                                                                                                       1040
1061
1082
1102
1128
                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                            YD_repeat_2x;
                                                                                                    258329
                                                                                                                                                                                                                                                                                                                                                                                                                                  Complete proteome.
OR 32 (POTENTIAL).
WALL-ASSOCIATED PROTEIN
                                                                                                     ₩.
                                                                  Score 95; DB:
Pred. No. 44;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                31 X 21 AA APPROXIMATE TANDEM REPEATS X(4)-G-X(4)-[YF]-X-D-X(2)-G-X(4).
                                                                                                                                                                                                                                                                                                                                                                                                                           X 101 AA APPROXIMATE
                                                                                                    B75138CCD278BAA3 CRC64;
                                                                                                                                                                        (APPROXIMATE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.
                                                                                   ۲,
                                                                   106;
                                                                                  Length 2334;
                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                           TANDEM
                                                                   102;
                                                                                                                                                                                                                                                                                                                                                                                                                            REPEATS
                                                                  Gaps
                                318
                                                 74
```

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                               Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nimum DB seq length: 0
aximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
     1886
949.5
930.5
38.1
371
275.5
115.5
115.5
115.5
111.5
114.1
113.1
111.5
111.5
                                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPTREMBL_23:*
1: sp_archea:*
2: sp_bacteria
3: sp_fungi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-839-894-10
1886
1 MNKILFIETLFFSS
      100.0
49.3
20.2
114.6
6.7
14.6
6.1
5.9
5.9
5.8
                                                                                                                                                                                                              Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        August 19, 2003, 09:43:34; Search time 99 Seconds (without alignments) 940.980 Million cell updates/sec
                                                                                                                                                                                                                            Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  830525 seqs, 258052604 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MNKILFIFTLFFSSVLFTFA.....EAGQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copyright
                                                                                                                                                                                                                                                                                                                      sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                     sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp_fung1:*
sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                             sp_plant:*
sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                      sp_vertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                    sp_virus:*
                                                                                                                                                                                                               Length DB
                                       361
363
364
387
387
359
1881
700
847
865
2646
743
2768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.6 (c) 1993 - 2003 Compugen Ltd.
                                                               5 5
                                                                                       16
2
2
      16
16
16
17
                         093G67
047115
047115
047119
047017
08KQJ7
08KQJ7
08KQJ6
08FQL5
08FQK2
08FQK2
08FQK2
08FQK2
08FQK2
08FQK2
08FQK2
08FQK2
08FQK2
                                                                                                                                                                                                              ij
                                                                                                                                                                                                                                                 SUMMARIES
Q9xds1 salmonella
Q8rgk2 fusobacteri
Q8ru50'chlamydia p
P71132 chlamydia p
P71132 chlamydia immun
Q8f521 plasmodium
Q8xnw2 clostridium
Q8xnw2 clostridium
Q8xnw2 clostridium
Q8xnw2 chanosarc
Q8f994 leptospira
Q8f994 leptospira
Q8f995 methanosarc
Q8kg15 rhizobium 1
                                                                                                                                 Q93g67 escherichia
Q47115 escherichia
Q47119 escherichia
Q8kgj7 burkholderi
Q8kgj10 burkholderi
                                                                                                                                                                                                              Description
```

Q8ex32 mycoplasma	Q8EX32	16	914	υ. ω.	100.5	
Q8clq7 yersinia pe	QBCLQ7	s 16	1267	л (л -	101	
	Q8ZJ21	16	1238	. 4.	101	
	Q8EW44	16	881	5.4	101	_
	Q97YM6	17	692	5.4	102	_
Q19229 caenorhabdi	Q19229	σ	376	5.4	102	_
Q91800 aeromonas s	Q9L800	N	2747		102.5	~
Q.	Q95PH7	S	1736		102.5	-
	Q8RD81	16	1754		103	٠.
_	Q8PZM5	17	868		103	٠.
	Q9ZKS9	16	2399		103.5	
	Q97Z06	17	1269		103.5	~
deino	Q9RZS7	16	691		103.5	٠٠
	Q9AUUS	10	803		104	-
Q8cw27 escherichia	Q8CW27	16	304		104	_
	Q9CFL1		1441		104.5	_
listeria	Q8Y7I7	16	598		105	~
æ	Q8YKQ8		843		105.5	~
	Q96VN2	ω	430		105.5	٠,
D	Q8IE94	տ	1937		106	٠.
Q8ezx0 leptospira	Q8EZX0	16	1065		106.5	_
Q8per7 xanthomonas	Q8PER7	16	1012		106.5	~
Q8xax2 escherichia	Q8XAX2	16	304		107	٠٠
025579 helicobacte	025579	16	2529		108	_
	Q9RLA0	N	872		108	_
Q8t7v5 drosophila	Q8T7V5	σ	807		109	_
_	Q8T2G3	Uī	2454	5. 8	109.5	~
P71133 chlamydophi	P71133	2	846		110	-

ALIGNMENTS

```
В
                                                                                  γ
                                                                                                                                                                  Q
  δÃ
                                                                                                                                 밁
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SO THE REPORT OF THE THE REPORT OF THE REPORT OF THE REPORT OF THE REPORT OF THE REPOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q47115
Q47115;
Q1-NOV-1996
Q1-NOV-1996
Q1-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIGNAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.

MEDLINE=94344028; PubMed=7915003;

Froehlich B., Karakashian A., Melsen L.R., Wakefield J.C.,

"CooC and CooD are required for assembly of CS1 pili.";

Mol. Microbiol. 12:387-401(1994).

EMBL; X76908; CAA54230.1; -.

InterPro; IPR001412; tRNA-synt_I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria; Proteobacteria;
Enterobacteriaceae; Esche
NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CooD precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                 234
                                                                                                                                                                         231
    351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                                                                                                                   59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 53.:
97; Conservative
                                                                                                                                                       GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      г
                                                                TPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNI
                                                                                                                                                                                                                                       LKLRVKRRYSET----YGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KILFIFTLFFSSVLFTFAVSADKIPGDE--SITNIF-GPR-DRNESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PS00178; AA_TRNA_LIGASE_I;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADAASLETNWNRITAVIMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NVTFTPSSQTL
                                        YPVNGQSFTINDSSVLETNWNRVTAVAMPEVNVPVLCWPARLLLNADVNAPDAGQYSGQI
                                                                                                                               GSNSLDMCFYDGYSTNSDSMVIKFQDDNPTNSSEYNLYKIG-GTEKLPYAVSLLMGEKIF
                                                                                                                                                                                                                 LILRLS-RYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNPRVDLNLRPIGNYKYS
                                                                                                                                                                                                                                                                                                                              KGYKQLLFKSVNCPSG--LTLNSAHFNCNKNA-ASGASLYLYIPAGELKNLPFGGIWDAT
                                                                                                                                                                                                                                                                                                                                                                               SLSHSLYDRIVELCTSSSNPVNGACPTI---GTSGVQYGTTTITLQFTEKRSLIKRNINL
                                                                                                                                                                                                                                                                                                                                                                                                               SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSYS-GETNITLQFTEKRSLIKRELQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            г
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                      AGNKKPIWENQSCDFSNLMVLNSKSWSCGAHGNANGTLLNLYIPAGEINKLPFGGIWEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KKIFIFL----SIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQSPIYNIFTNHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1
19
363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
363
40139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50.3%;
53.1%;
    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23,
23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 949.5; 1
Pred. No. 6.2e
55; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA9488AADDED5F72 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2e-65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                    174
                                                                                                                                                                                                                                                                                                                                                                                                                                117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                               292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
ID 77119
AC Q471119
DT 00
DT 
RESULT
Q8KQJ7
ID Q8
AC Q8
AC Q8
DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
08KQJ7 PREI
08KQJ7;
01-OCT-2002 (Tri
01-OCT-2002 (Tri
01-MAR-2003 (Tri
Putative minor I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q47119;
Q47119;
Q1-NOV-1996
Q1-NOV-1998
Q1-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Signal.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=96071908; PubMed=7591145; Froehlich B.J., Karakashian A., Sakellaris H., Scott J.R.; Froehlich B.J., It of enterotoxylgenic Escherichia coli and their interchangeability with those for CS1 pili."; Infect. Immun. 63:4849-4856(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN=C91f-6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; Z47800; CAA87763.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CotD precursor
                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                          239
                                                                                                                                                                                                                                                                                                                                                                                                                                                  236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                             356
                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                  296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               353
                                                                                                                                                                                                                                       359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    al Similarity
177; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                              GYKQLLFKSVNC---PSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NKDHSLFDRMTFLCMSSTDASKGACPTGENSKSS--QGETNIKLIFTEKKSLARKTLNLK
                                                                                                                                                                                                                                                                             PSSQTL
                                                                                                                                                                                                                                                                                                                        EAFTINDTSSLFINWNRIKSVSLPQISIPVLCWPANLTFMSELNNPEAGEYSGILNVTFT
                                                                                                                                                                                                                                                                                                                                                                  TSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ELRVKRHYDYNHGTYKVNITVDLTDKGNIQVWTPKFHSDPRIDLNLRPEGNGKYSGSNVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GYKRFLYESDRCIHYVDKMNLNSHTVKCVGSFTRGVDFTLYIPQGEIDGLLTGGIWEATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTESIGPIDRSAAASYPAHYIFHEHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRN--ESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YITFTPSVENL
                                                                                                                                                                                                                                       PSSSSL
                                                                                                                                                                                                                                                                                                                                                                                                            EMCLYDGYSTHSQSIEMRFQDDSQTGNNEYNLIKTGEPLKKLPYKLSLLLGGREFYPNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 (TrEMBLrel.
6 (TrEMBLrel.
8 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364 AA;
                                     (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     coli
                                                                                  (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
19
               pilin
                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40979 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49.3%;
                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               363
                                          22,
23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64;
                                        Last sequence up
                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 930.5;
Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EC7AC738A0E195B6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                               387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        364
                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8e-63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118;
                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 364;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

58

175

178

235

238 295

298

```
Ş
                                                                                                     SOR RETERMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 β
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ΩÝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOR REPRESENTATION OF THE PROPERTY OF THE PROP
Query Match
Best Local S
Matches 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 116
                                                                                           Tomich M., Mohr C.D.;
"Identification and characterization of a locu pilus biogenesis in Burkholderia cepacia.";
Submitted (MAY-2002) to the EMBL/GenBank/DDBJ EMBL; AY114293; AAM56040.1;
InterPro; IPRO03016; Lipoy1.
PROSITE; PS00189; LIPOY1. 1.
SEQUENCE 387 AA; 41805 MW; 39DC45F31BA8CEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QBKQ10 PRELIMINARY; PRT; 387 AA. (DBKQ10; CTEMBLrel. 22, Created) 01-OCT-2002 (TrEMBLrel. 22, Last sequence update) 01-MAR-2003 (TrEMBLrel. 23, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; PROSITE; P
                                                                                                                                                                                                                                                                                                                                                                                                    Burkholderia cepacia (Pseudomonas cepacia).
Bacteria; Proteobacteria; Betaproteobacteria; Burkholderiales;
Burkholderiaceae; Burkholderia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CBLD
                                                                                                                                                                                                                                                                                                   STRAIN-BC7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burkholderia cepacia (Pseudomonas cepacia).
Bacteria; Proteobacteria; Betaproteobacteria; Burkholderiales;
Burkholderiaceae; Burkholderia.
                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Putative minor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (MAR-2002) to the EMBL; AY082893; AAL92876.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sajjan U.S., Forstner 
"Identification and a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sajjan U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
nes 116; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39
                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; IPR003016; Lipoyl.
PS00189; LIPOYL; 1.
387 AA; 41653 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GNIQIWLPQFKS-DARVDLNLRPTGGGTYI-GRNSVDMCFYDGYSTNSSSLEIRFQDN--
                                                                                                                                                                                                                                                                                                                                FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GRSVTLPGISAPVICTPTPLTL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTI---NITIKLTDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TNIKLSFKEENTGATAVLTLEGANGYQRHRDCTGSVISGVGVDCPKTDGNRESATIAGCD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TNITLQFTEKRSLIKRELQIK---GYKQ------LLFKSVNCP--SGLTLNSAHFNCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITAVTMPEISVPVLCWPGRLQLDAKVENPE-----AGQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               {\tt NNIQVYLPEFTSATPTVDLKLRNVANGSRMSGTSNVDMCLYDGYNSQSTWFDVSASDGLT}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TVGWDGRVLFVKIPAAELKKLPSGGTWKANLRLNLKLWSSSTATTLAIFKAAITLDTTDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RDRGTPVGDVLIFDKASGGYDTSDYLKWGRNSWTCQSSTDTATGACPTV--PVWEKAGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -NPKSDGKFYLRKINDDT----KEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RDRNESSPKHNILNNHITAYSESHTL-YDRMTFLCLSSHNTLNGACPTSENPSSSSVSGE
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20.2%; ilarity 32.6%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  er J.F.;
analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLDKDKSGAYESRIDYAASLTYAGKKIALPNNETVRLQG
                       19.7%;
31.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            initiator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50;
  50;
                       Score 371; DB Pred. No. 1.8e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 381; DB 2;
Pred. No. 3.1e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of.
                                                                                                  39DC45F31BA8CE0C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B4547E146DDAC7B2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -ETPEFQSVWKRPGKYSHKLTITFTPSSTSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pilin genes
                                                                                                                                                                                                                                                  locus required
144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   146;
                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                   databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
                                              Length
                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burkholderia
                                                 387;
                                                                                                                                                                                                                                                    for
52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44;
                                                                                                                                                                                                                                                    cable
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100
13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
```

```
RESULT
Q9XDS1
  ALD DREFT REAL AREA CONTRACTOR OF THE CONTRACT OF THE CONTRACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                       SEQUENCE FROM N.A.

SPECIES-S.typhi; STRAIN-CT18;

MEDLINE-21534947; PubMed-11677608;

MEDLINE-21534947; PubMed-11677608;

MEDLINE-21534947; PubMed-11677608;

MEDLINE-21534947; PubMed-11677608;

Marcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihia.

Churcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihia.

Baker S., Basham D., Brooks K., Chillingworth T., Connerton P.,

Cronin A., Davis F., Davies R.M., Dowd L., White N., Farrar J.,

Feltwell T., Hamlin N., Haque A., Hien T.T., Holroyd S., Jagels K.,

Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Parry C.,

Quail M., Rutherford K., Simmonds M., Skelton J., Stevens K.,
                      "Mhitehead S., Barrell B.G.;
"Complete genome sequence of a multiple
enterica serovar Typhi CT18.";
Nature 413:848-852(2001).
EMBL; AB029403; BAA82272.1; -.
EMBL; AB029403; BAA8277.1; -.
EMBL; AL627266; CAD08773.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
TSAD protein (Putative fimbrail protein).
TSAD OR TCFD OR STY0348.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lofdahl S., "Multiple insertions of fimbrial operons correlate with of Salmonella serovars responsible for human disease.", Mol. Microbiol. 33:612-622(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECIES-S.enterica; STRAIN-RKS 3333; MEDLINE-99348391; PubMed-10417651; Folkesson A., Advani A., Sukupolvi S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPECIES=S.typhi; Hashimoto Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; Gamm
Enterobacteriaceae; Salmonella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Salmonella typhi, ar Salmonella enterica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9XDS1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9XDS1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ication of a
i (JUN-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTI---NITIK 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LTDKGNIQIWLPQFKS-DARVDLNLRPTGGGTYI-GRNSVDMCFYDGYSTNSSSLEIRFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NNSAGRSVTLPGISAPVICTPTPLTL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NWNRITAVTMPEISVPVICWPGRLQLDAKVENPE-----AGQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DGLTIDRRDKGQYSTLLDKDKSGAYESRIDYAASLTYAGKKIALPNNETVRLQG-----V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DN---NPKSDGKFYLRKINDDT----KEIAYTLSLLLAGKSLTPTNGTSLNIADAASLET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTDKNNIQVYLPEFTSATPTVDLKLRKLPNGSRMSGTSNVDMCLYDGYNSQSTWFDVSAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCDTVGWDGRVLFVKIPAAELKKLPSGGTWKANLRLNLKLWSSSTATTLAIFKAAITLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TNIKLSFKEENTGATAVLTLEGANGYQ----RHRDCTGSVISGVVSIARRPMEMAQSATI 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TNITLQFTEKRSLIKRELQIK - - - GYKQLLFKSVNC - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RDRGTPVGDVLIFDKASGGYDTSDYLKWGRNSWTCQSSTDTATGACPTV--PVWEKAGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RDRNESSPKHNILNNHITAYSESHTL-YDRMTFLCLSSHNTLNGACPTSENPSSSSVSGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN=GIFU10007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ស
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to the EM
Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ve fimbrial operon
EMBL/GenBank/DDBJ
proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     s.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfeifer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ETPEFQSVWKRPGKYSHKLTITFTPSSTSL
                                                                                                                                                        drug
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₿
                                                                                                                                                           resistant Salmonella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of Salmone databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Salmonella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Normark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PSGLTLNSAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                typhi.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                                             Wain
                                                                                                                                                                                                                                        Ċ.,
                                                                                                                                                                                                                                                                                                                                                 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97
```

255 207

```
Ş
                          ₽
                                                    20
                                                                                                                                     KW DR RL DR RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 90
                                                                                Matches
                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUN-2002
01-JUN-2002
01-MAR-2003
                                                                                                                                                                                                             Kapatral V., Anderson I., Ivanova N., Reznik G., Los T., Lyk Bhattacharyya A., Bartman A., Gardner W., Grechkin G., Zhu L Vasieva O., Chu L., Kogan V., Chaga O., Goltsman E., Bernal Larsen N., D'Souza M., Walunas T., Pusch G., Haselkorn R., Fonstein M., Kyrpides N., Overbeek R.;

"Genome sequence and analysis of the oral bacterium Fusobact nucleatum strain ATCC 25586.";
J. Bacteriol. 184:2005-2018(2002).

EMBL; AE010541; AA194497.1;
                                                                                                                                                          InterPro; IPR000508; SigPTase.
Pfam; PF00018; SH3; 1.
PROSITE; PS00761; SPASE_I_3; 1.
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. STRAIN-ATCC 25586;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                        MEDLINE=21886394; PubMed=11889109;
                                                                                                                                                                                                                                                                                                                                                                                                                       Fusobacterium nucleatum Bacteria; Fusobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8RGK2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q8RGK2
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FN0291
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hemolysin.
                                                                                                                                                                                                     InterPro; IPR001452;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130 -- CPSGLTLNSAHFNCNKNAAS----GASLYLYIPAGELKNLPFGGIWDATLKL-RVKRRY
  50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVN
                          σ
                                                  1 MNKILFIFTLFFSSVLFTFAV------SADKIPGDESITNIFGPRDRNESSPKHN-
                                                                                6;
                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOS
                                                                                                                                                  proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DDPLGTSTTDITLNVTDHFAENAAIYFPQFGTATPRVDLNLHRMNASQMSGRANLDMCLY
                         LKKLIAIFMLFLHIISLADGIVPDNSASKNLQVDKAANGVPLVNIEAP-DNNGTS--HNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNVDKAATR-----PVVLPGQRQAVRCVPVPLTLTTQPFNIREKRSGEYQGTLTVTMLMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAK----VENPEAGQYMGNINVTFTPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DG-GVKARSLOMKIEGSNKSGTGFQVIKSDSADT--IDYAVSMNYGGRSIPVTRGVEFSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SETYGTYTINITIKLTD--KGNIQIWLPQF-KSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DACYTGV----INMNAAACQWGRSLKLRIPSEELAKIPTSGTWKATLVLDYLQWGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WVCRSNRNENEGACEETHLVWWYAFGAYSKIRLRFREQISHAEITL-----ILLGSVR: 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (TrEMBLrel. 21, 02 (TrEMBLrel. 21, 13 (TrEMBLrel. 23, 13
                                                                                                                                     1881 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              359
                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                       25586;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ą
-ILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSG--
                                                                                           6.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14.6%; 29.7%;
                                                                                                                                                                                                         SH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39741 MW;
                                                                                                                                     204375 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                       fusobacterales; Fu;
                                                                                45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 275.5; |
Pred. No. 3.6e
48; Mismatches
                                                                                                         Score 127;
                                                                                              Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BB88A4E9A62052CE CRC64;
                                                                                Mismatches
                                                                                                                                    D635156A4EFA4877 CRC64;
                                                                                              No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1881
                                                                                                                                                                                                                                                          oral bacterium Fusobacterium
                                                                                          0.78;
                                                                                                                                                                                                                                                                                                                                                                                                                       Fusobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .6e-13
                                                                                                         DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130;
                                                                                120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                      LOS T., Zhu
                                                                                                        Length 1881;
                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                          Lykidis
                                                                              122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                           A
                          61
96
                                                    49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
Q8VU50
              밁
                                    δÃ
                                                                밁
                                                                                     Qy
                                                                                                                    Вb
                                                                                                                                               δÃ
                                                                                                                                                                          밁
                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-2002
01-MAR-2002
01-MAR-2003
                                                                                                                                                                                                                                                                                                                                      NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                         Laroucau K., Souriau A., Rodolakis A.;
"Isolation of a new pmp sequence and evidence of pmp poserotype-1 Chlamydia psittaci strains.";
submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases
EMBL; AF243415; AAL36959.1;
Interpro; IPR003368; Chlamydia_PMP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Putative polymorphic membrane protein (Fragment). Chlamydia psittaci (Chlamydophila psittaci). Bacteria; Chlamydiae; Chlamydiaes; Chlamydiaeae
                                                                                                                                                                                                                                                                                                                                                                   TIGRFAMs; TIGR01376;
                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF02415; DUF145; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-POS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q8VU50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=83554;
                                                                191
                                                                                           160
                                                                                                                      131
                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           304
                                                                                                                                                                           87
                                                                                                                                                                                                      84
                                                                                                                                                                                                                                27
                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                  Similarity
                                                                                           GELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDL
                                                                                                                                               CPSGLT-----A 159
                                                                                                                                                                           FIGNGYTLCFDNITTTASNPGAINVSGD------
                                                                                                                                                                                                                                                       NESSPKHNILNNHITA-----YSESHTLYDRMTFLCLS---SHNTLNGAC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQ--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KNAASGASLYLYIP-----AGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIK 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YGNPNLONSKEASTIINEVSGVNKSRIEGYQEIVGKRANYILANPNGIYINGAGFINTGN 149
           {\tt NLGDITFDGNKVIKTNGGSSTVKRNAIDLGSGGKFTKLNAKEGFGIFFHDPIANTGGSTE}
                                                                GNSSQKKGGAIY--TKKLTITADGPTLFSNNSVSAS---SPKGG-AICLDDTSSECSLTA
                                                                                                                      CPPGTTGYGAIQTKGVSTFSGNNKLIFDNNCSTGEGGAIKCATGSNAELKLEGNSYVVFS
                                                                                                                                                                                                                                NETLTSSDSYNGNVTSDEFEVKETTSGAIYTCEGNVCISYAGKDSPLNKSCFSETTENLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DAASLETNWNRIT 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MYATKGDVVISSKGKVYLKDTQAKRDIKISSTETEIG---SKLLAENAINIKSGKTSN--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NQGKSN----KPEYALDAR-----ALGSIYAGRINI-----IVNEDGVGVKTQAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ETNITLQFTEKRSLIKREL-----QIKGYKQLLFKSVNC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YKDYNVDGRGAILNN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SGQIRAN-NNIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----DNNPKSDGKFYLR-----KINDDTKEIAYTLSLLLAGKSLTPTNGTSLNIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VTFTTGRGNNLLNPEKGMIEIAG--KGLDLRNINKAELIARVAELSAPIYGGEEVNLKLG
                                                                                                                                                                                                                                                                                                                                        700
700 F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel.
                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                        AA;
                                       ----RPTGGGTYIGRNSVDM---
                                                                                                                                                                                                                                                                                                                                     700
74200 MW;
                                                                                                                                                                                                                                                                                              6.1%;
                                                                                                                                                                                                                                                                                                                                                                POMP_repeat; 3.
                                                                                                                                                                                                     - PTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20, Created)
20, Last sequence update)
23, Last annotation update)
                                                                                                                                                                                                                                                                                     63;
                                                                                                                                                                                                                                                                                               Score 115.5;
Pred. No. 1.7
                                                                                                                                                                                                                                                                                                                                        2C38E504AF48D1D1 CRC64;
                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chlamydiaceae; Chlamydophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         700
                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                     124;
                                       -----CFYDGYSTNSSSLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                pmp polymorphism
                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                           -QKTLNVSGFS--LFSCAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -PSGLTLNSAHF -- NCN 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SKDLTNSQLGGLI
                                                                                                                                                                                                                                                                                    139;
                                                                                                                                                                                                                                                                                    Gaps
```

129

98

83

304 251 219 190

```
밁
                                         õ
                                                                                           밁
                                                                                                                                       δõ
                                                                                                                                                                                                 В
                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAT DR RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P71132
P71132;
01-FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-96406378; PubMed-8810511;
Longbottom D., Russell M., Jones G.E., Lainson F.A., H
"Identification of a multigene family coding for the 9
of the ovine abortion subtype of Chlamydia psittaci.";
FEMS Microbiol. Lett. 142:277-281(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   highly immunogenic cluster of 90-kiloda Chlamydia psittaci subtype that causes Infect Immun. 66:1317-1324(1998). EMBL; U65942; AAC15921.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGRFAMS; TIGR01414; autotrans_bar1; 1.
TIGRFAMS; TIGR01376; POMP_repeat; 3.
SEQUENCE 847 AA; 90694 MW; 754C958E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR006315; Autotransport.
InterPro; IPR003368; Chlamydia_PMP.
Pfam; PF02415; DUF145; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-S26/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-S26/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chlamydophila abortus.
Bacteria; Chlamydiae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1997 (TrEMBLrel.
01-FEB-1997 (TrEMBLrel.
01-MAR-2003 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Longbottom D., Russell M., Dunbar S.M., Jones G.E., Herring A.J., "Molecular cloning and characterization of the genes coding for the highly immunogenic cluster of 90-kilodalton envelope proteins from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-98187897; PubMed-9529048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=83555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                      238
                                                                                                   226
                                                                                                                                                                                                      167
                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                        103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                                                      70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        و
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLCLS----SHNTLNGACPT----
     KLNAKEGFGIFFYDPITGGGSDELNINKQDTVDYT-GKIVFSGERLSDEEKKVAANLKSD
                                                 -----CFYDGYS-TNSSSLEIREQDNNPKSDGK--FYLRKINDDTKEIAYTL---
                                                                                                   SASSPKGGAICIKDSGG-ECSLTADLGDITFDGNKIIKTNGGSPTVTRNSIDLGSSGKFT
                                                                                                                                               NIT-----IKLTDKGNIQIWLPQFKSDARVDLN--LRPTGGGTYIGRNSVDM-----
                                                                                                                                                                                                 GEGGAIOCKASSSEAELKIENNONLVFAENSSSSSGGAIYAD-KLTIVSGGPTLFSNNSV
                                                                                                                                                                                                                                                  NAASGASLYLYIPAGELK----NLPF-----
                                                                                                                                                                                                                                                                                                                                                   QFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSA----
                                                                                                                                                                                                                                                                                                                                                                                                     NICIAYAGLDGSGLSSSCFTDTAGNLSFLGNGYTLCFDNITTQSSHPGAISVSG-TNKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LISSSLIVSNSLYSEE-PDQKTLTSAHSYNGNTNSEP----FNPLSTSNSNGTIYTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AKKITOTKGSTVVMDLGTTLQTPSSSGETITLTNLDINI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPV 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IRFQDNNPKSD----GK--FYLRKINDDTKEIAYTL----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IEL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NKTESDTTYTGKIVFSGEKLSDEEKTVPDNLKSYFKQPLKIGAGSLVLKDGVTLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.1%;
                                                                                                                                                                                                                                                                                                    -LDISGFS--LFSCAYCPPGATGYGAIKAVGNTTIKDNSSLVFHKNCST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chlamydiales; Chlamydiaceae; Chlamydophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2,02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 115.5; DB 2;
Pred. No. 2.1;
8; Mismatches 153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .754C958E7F11179E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             abortion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                  -GGIWDATLKLRVKRRYSETYGTYTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                    -- SENPSSSSSVSGETNITL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Herring
90 kDa p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ·---SLLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A.J.;
for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          proteins
                                                                                                                                                                                                                                                                                                                                                      ---HFNCNK 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                 225
                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                      102
                                                 281
                                                                                                284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                  237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
Q807H
AC Q807H
AC Q807H
DT 01-JU
DT 01-OC
DE ENVell
GN ENV
OS Human
OC Virus
OX NCBI
RN [1]
RY SEQUE
RA WGANS
RT WEDLI
RT Phylc

                                                 밁
                                                                                        δÃ
                                                                                                                                               Ъ
                                                                                                                                                                                         Q
                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000328; Env_GP41.
InterPro; IPR000777; GP120.
Pfam; PF00516; GP120; 1.
Pfam; PF00517; GP41; 1.
AIDS; Coat protein; Glycoprotein; Polyprotein; Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q8Q7H7;
01-JUN-2002 (TrEMBLrel. 21,
01-JUN-2002 (TrEMBLrel. 21,
01-OCT-2002 (TrEMBLrel. 22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AIDS Res. Hum. Retroviruses 18:269-282(2002)
EMBL; AF383244; AAL98866.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamaguchi J., Vallari A.S., Swanson P.,
Ngansop C., Zekeng L., Gurtler L.G., De
"Evaluation of HIV Type 1 Group O Isola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=21849375; PubMed=11860674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=99CMA304;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human immunodeficiency virus
Viruses; Retroid viruses; Ret
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q8Q7H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Phylogenetic Clusters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=11676;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Envelope
                                                                                                                                               345
344
                                                 404
                                                                                                                                                                                                 263
                                                                                                                                                                                                                                                  299
                                                                                                                                                                                                                                                                                                 203
                                                                                                                                                                                                                                                                                                                                                   239
                                                                                                                                                                                                                                                                                                                                                                                                     170
                                                                                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
GQYMGNINVTFTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLSSHNT-LNGACPTSENPSSSSVS----GETNITLQFTEKRSLIKRELQIKGYKQLLFK 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VSADKIPGDESITNIFGPRDRNESSPKHNILNNH-----ITAYSESHTLYDRMTFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glycoprotein (Fragment).
                                                                                                                                                                                                 GKFYLRKINDDTKEIAYTLSLLLAG---
                                                                                                                                                                                                                                                                                                                                                   KNITYVTCTHGIKPTVSTQLILNGTLSKGKIRIMTKNISDNVNIIVTLNSTLKITCKRPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    NTTNTTMYTLT----NCNSTTISQACPKVSFEPIPIHYCAPAGYAIFKCNNIEFNGTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CVQMNCTSLN----DTKSNPTSSPENLMKKCEFNVTTVVKDKKEKKQALFYVSDLMKLDDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VPTDPTPYEYPLHNV-----TDKFNIWENYMVKQMQGDIIDLWEQSLKPCVKMTFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ASLGGGGVAPDPAKVE
                                                                                                                                               AERFLELVN-NTKKVDMTFSNSSGGDPEVANLHFNCHGEFFYCNTSSLFNYTFSCNGSTC
                                                                                                                                                                                                                                             NMTVQQVSIGPMAWYSMDLR----GTERNTSRVAYCEY----NSTDWE-----RTLKQT
                                                                                                                                                                                                                                                                                               NIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SVNCPSGLTLNSAHFNCNKNAASGA----SLYLYIPAG----ELKNLPFGG----
                                                 NVTKSNN-STNNTRIPCRLRQVVKSWIQGGSGLYAPPIRGNLTCMSNITGLMLQMDQP--
                                                                                                NIADAASLETNWNRI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PVLCWPGRLQLDAKVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FKQPLKIGSGSLILKDGVTLETKSFTQTEGATVVMDLGTTLQTPSSGGETITLTNLDINV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------SLLLAG------KSLTPTNGTSLNIADAASLET--NWNRITAVTMPEISV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      865 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97118 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                  -----IWDATL---KLRV-KRRYSETYG-TYTINITIKLTDK--G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gurtler L.G., Devare
1 Group O Isolates:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Retroviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 114; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 2.9; 
i; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         996B83862AA51ACA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   865
                                                                                             -TAVTMPEISVPVLCWPGRLQLDAKVENPEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bodelle P., Kaptu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lentivirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S.G., Brennan (
Identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                              ------KSL----TPTNGTSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kaptue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C.A.;
of Five
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                              460
                                                                                                                                                                                                                                             344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   169
                                                                                                                                               403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 403
                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                               262
                                                                                                                                                                                                                                                                                                                                                   298
                                                                                                                                                                                                                                                                                                                                                                                                  202
                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
```

22;

Clostridiaceae;

Hayashi Yamashita A.,

an Η

Indels Length

95;

Gaps

```
RESULT 12
Q8XNW2
ID Q8XNW
AC Q8XNW
DT 01-MA
DT 01-MA
DT 01-MA
DT 01-MA
DT 01-MA
CT 01-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy . B
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 77
                                                                01-MAR-2002
01-MAR-2002
01-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         081521;
081521;
01-MAR-2003
01-MAR-2003
01-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-2255705; PubMed-12368864;
Gardner M.J., Hall N., Fung E., White O., Berriman M., Hyman R.W., Carlton J.M., Pain A., Nelson K.E., Bowman S., Paulsen I.T., James K. Elsen J.A., Rutherford K., Salzberg S.L., Craig A., Kyes S., Chan M.-S., Nene V., Shallom S.J., Suh B., Peterson J., Angiuoli S., Pertea M., Allen J., Selengut J., Haft D., Mather M.W., Valdya A.B., Martin D.M.A., Fairlamb A.H., Fraunholz M.J., Roos D.S., Ralph S.A., McFadden G.I., Cummings L.M., Subramanian G.M., Mungall C., Venter J.C., Carucci D.J., Hoffman S.L., Newbold C., Davis R.W., Frasser C.M., Barrell B.,
    CPE0220.
Clostridium
                                             Hypothetical
                                                                                                                            Q8XNW2;
                                                                                                                                                 Q8XNW2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nature 419:498-511(2002).
EMBL; AE014850; AAN36476.
SEQUENCE 2646 AA; 3002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmodium falciparum (isolate 3D7)
Eukaryota; Alveolata; Apicomplexa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Genome sequence of the human malaria falciparum.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-3D7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Erythrocyte membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=36329;
                                                                                                                                                                                                                                                   951
                                                                                                                                                                                                                                                                                        304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                 KSLQTNLKAI
                                                                                                                                                                                                                                                                                        ASLETNWNRI
                                                                                                                                                                                                                                                                                                                            EAEFIKKKYNEKQNDGKNGLRKDQATTCRAIRYSFADIGDIIRGKDLWDDNN---
                                                                                                                                                                                                                                                                                                                                                                   SSLEIRFQDNNPKSDGKFYLRKINDDT-KEIAYT---LSLLLAGKSLTPTNGTSLNIADA
                                                                                                                                                                                                                                                                                                                                                                                                             IGQVW--SIKNDTSYTDVYMPPRRQHMCTSNLEKLNYASVIGSNNVNDKFLVEVLHAAKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  --QIWLPQFKSD-ARVDL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALKGNIQNAKINNGRKPN-----PLTDACQITKNHSNGKG----DSNNPCNNKGNRLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KNPCSGDTSGDSN--KQYEAVANTVAQILQGKAQKQL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDS--TAIQGIKKTLEKKKKEKGAN-----ISEEKTILDEFLNHELKDAETCKNCEPRKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDESITNIFGPRDRNESSPKHNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTS-
                                           2 (TrEMBLrel. 20, Cr
2 (TrEMBLrel. 20, La
3 (TrEMBLrel. 23, La
1 protein CPE0220.
    perfringens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (TrEMBLrel. 23, (TrEMBLrel. 23, (TrEMBLrel. 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WNHSNATFRP
                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.0%;
24.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300284 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37;
                                                              Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence up
                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 14;
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 113;
                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PfEMP1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C91D257F3DEF8717 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haemosporida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2646
                                                                                                                                               743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             parasite Plasmodium
                                                                                                                                                                                                                                                                                                                                                                                                                                                ·NLRPTGGGTYIGRNSVDMCFYDG--YSTNS
                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           on update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     128;
                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2646;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmodium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HGNGSRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ...
..
                                                                                                                                                                                                                                                                                                                              ĎΑ
                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                                                                                                                                                                                                                                                                                                                                950
                                                                                                                                                                                                                                                                                                                                                                                                             896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      747
                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  204
RESULT QUESCA CONTROL 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                               01-MAR-2003
01-MAR-2003
01-MAR-2003
                  MEDLINE=22297686; PubMed=12368813;
Heidelberg J.F., Paulsen I.T., Nelson K.E., Gaidos E.J., Nelson W. Read T.D., Eisen J.A., Seshadari R., Ward N., Methe B., Clayton R.. Meyer T., Tsapin A., Scott J., Beanan M., Brinkac L., Daugherty S. Meyer T., Tsapin A., Scott J., Beanan M., Brinkac L., Colonay J.F., Deboy R.T., Dodson R.J., Durkin A.S., Haft D.H., Kolonay J.F., Madupu R., Peterson J.D., Umayam L.A., White O., Wolf A.M., Vamathevan J., Weidman J., Impraim M., Lee K., Berry K., Lee C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Complete genome sequence of Clos
flesh-eater";
Proc. Natl. Acad. Sci. U.S.A. 99:
EMBL; AP003185; BAB79926.1;
Interpro; IPR001899; Gram_pos_anc
Interpro; IPR006635; NEA_transpt.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shimizu T., Ohtani K., Hirakawa H., Ohshima K., Yamas
Shiba T., Ogasawara N., Hattori M., Kuhara S., Hayash
"Complete genome sequence of Clostridium perfringens,
                                                                                                                                                                                                                                                                                    Shewanella oneidensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIGRFAMS; TIGR01167; LPXTG_anchor; Hypothetical protein; Complete protein SEQUENCE 743 AA; 81149 MW; A7C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A. STRAIN=13 / Type A;
      Mueller
                                                                                                                                                                STRAIN=MR-1;
                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                          NCBI_TaxID=70863
                                                                                                                                                                                                                                             Alteromonadaceae;
                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                           SO4317.
                                                                                                                                                                                                                                                                                                                          RTX toxin, putative.
                                                                                                                                                                                                                                                                                                                                                                                                             Q8E9G6;
                                                                                                                                                                                                                                                                                                                                                                                                                              Q8E9G6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=11792842;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria; F
Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SM00725; NEAT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YTL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LMTYYFNSSLYGFMNNIEVSAGGEALKIEENKDDKSITFEVPSPDTKVKIGLFITMMGRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNES----SPKHNI-LNNHITAYSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FNIPDLNSDIVVSTLVSMMGKEVSFKTTLNYDTAKKLEDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ISGDTSFVKDGKAEIPGVYPITYK-----VTDSSGQFD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTEKRSLIK-RELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HTLYDRMTFLCLSSHNTLN--GACPTSENPSSSSV-----SG-----ETNITLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Firmicutes;
                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
  Weidman J.,
ouri H., Gill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---LVNDMNTVNLLDEAPTINNAKDISVTQGDAIDLLSGVIGTDKEDSNLKVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -EKTVNVTVNKKTTLGDGSYTLKNTVQYVGQGNMETGNSMARKVLSDDSRID
                                                                                                                                                                                                                                               Shewanella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ·NGKNTVTLTF -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -SLLLAGKSLTPTNGTSLNIADAASLETN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gram_pos_anchor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clostridia; Clostridiales;
                                                                                                                                                                                                                                                                                                                                               23,
                                                                                                                                                                                                                                                                  Gammaproteobacteria; Alteromonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66;
                                                                                                                                                                                                                                                                                                                                               Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 111.5;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a7C451E9C5A5E545 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99:996-1001(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              2768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NSELYAFLKNFNVTVDGEKVEAEVNKDNRTIK
                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115;
                                                                                                                                                                                                                                                                                                                                                 update)
```

309

278 285 218

W.C.,

.......

234

237 289 197

385

```
RESULT 14
Q8F994
               Ş
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RA RT RT RT DR RT SQ
                                                      Query Match
Best Local
                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                         Q8F994
                                                                                                                                                                                                                                                                   Q8F994;
01-MAR-2003 (TIEMBLIEL 23,
01-MAR-2003 (TIEMBLIEL 23,
01-MAR-2003 (TIEMBLIEL 23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Feldblyum T.V., Smith H.O., Venter J.C., Nealson K.H., Fraser C.M.; "Genome sequence of the dissimilatory metal ion-reducing bacterium Shewanella oneidensis."; Nat. Biotechnol. 20:1118-1123(2002).
EMBL; AE015864; AAN57286.1; -.
TIGR; S04317; -.
                                                                                           Complete proteome. SEQUENCE 589 AA;
                                                                                                                     Submitted (MAR-2002) to the EMBL; AE011218; AAN47500.1;
                                                                                                                                                 Ren
                                                                                                                                                            STRAIN-56601
                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                     Bacteria; Spirochaetes;
NCBI_TaxID=173;
                                                                                                                                                                                                                                              LA0301.
                                                                                                                                                                                                                                                           Outer membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complete
                                                                                                                                                                                                                              Leptospira interrogans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                              2343
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163
                40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81;
                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
LLDNL
                                                                                                                                                                                                                                                                                                                                                                                                                       YMGNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                DAQGNPLNAQAITLYDFDPTNANWLRDQKITLP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEA-GQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FYDGYSTNSSSLEIREQDNNP-----KSD-GKFY-----LRKINDDTKEIAYTLSLLLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KNLPFGGIWDATLKLRVKRRYS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LIKRELQ-----IKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HTLYDRMTF----LCLSSHNTL-----NGACPTSENPSSSSVSGETNITLQFTEKRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSALLTINVNTVNANALKAVQDQKN--GPEDTAVIGNVLENDGNKNTSVTHFTVANSATQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSVLFTF---AVSADKIPGDESITNIFGPRD-----RNESSPKHNILNNHITAYSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YVSGGSNSNKVMEIEFNSGDKTLYTDIQADAGRFYELGFDIAARSGSVSTSGLTIKLIPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTINGYTSVAAINFE-DAKFSGSWDGVKANDIKGLNTIGTWHTSNRGGQVEIGYESV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LTDKGNIQIWLPQFKSDARVD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VTKPESKTIAEDALAKG--NVLENDTDVDNTLSVTS--FQVNGVTYNAGNTWYQLPEG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HTAGSKITLAEGELTLNADGSYTFTPAADWNGQVPVITYTTNTGATSTLTIVVTPVDDPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2768 AA;
                                         Conservative
                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                            Serogroup Icterohaemorrhagiae
                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                              2347
                                                                                                                                                                                                                                                                                                                                                                                                                       350
                                                                                            67901 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -TLQLKTNGEYSFDPKDHWSGSLPVITYTTNTGATSTLNITVQAVADAPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.9%;
                                                      5.9%;
21.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              285094 MW;
                                                                                                                                                                                                                                                        OmpA
                                                                                                                                                                                                                 Spirochaetales;
                                      50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         68;
                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
family.
                                                      Score 110.5;
Pred. No. 3.:
                                                                                                                                  EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 111; D
Pred. No. 22;
                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                            26A00B0B5B7E73DC CRC64;
                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55FCE30E3E09C1BE CRC64
                                                                                                                                                                                                                                                                                                                          589
                                                                                                                                                                                                                 Leptospiraceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 16;
                                                                  DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160;
                                         109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LNLRPT-----GGGTYIGRNSVDMC
                                                                                                                                                            Serovar

    INQSGKYRLQFEGDNGDSYGA

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2768;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETYGTYTINITIK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 116;
                                        Indels 101;
                                                                  Length
                                                                                                                                                            lai;
                                                                                                                                                                                                                 Leptospira.
                                                                  589;
                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                2342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       162
               93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                         16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
Q8Q0S0
            δõ
                                    DЬ
                                                              Qy
                                                                                           В
                                                                                                                 Qy
                                                                                                                                             뮹
                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                  Query Match
Best Local S
Matches 70
                                                                                                                                                                                                                                                      Complete
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v1-UCT-2002 (TrEMBLrel. 22, 01-0CT-2002 (TrEMBLrel. 22, 01-MAR-2003 (TrEMBLrel. 23, Conserved arcti-
                                                                                                                                                                                                                                                                                                       EMBL; AE013226; AAM29762.1; -. InterPro; IPR000601; PKD_domain.
                                                                                                                                                                                                                                                                                                                                                                                      Deppenmeier U., Johann A., Hartsch T., Merkl R., Schmitz R.A., Martinez-Arias R., Henne A., Wiezer A., Baeumer S., Jacobi C., Brueggemann H., Lienard T., Christmann A., Boemecke M., Steckel S Brutacharyya A., Lykidis A., Overbeek R., Klenk H.-P., Gunsalus
                                                                                                                                                                                                                                                                                                                                                  transfer between Bacteria and
                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-Goel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8Q0S0;
01-OCT-2002
                                                                                                                                                                                                                                                                                 PROSITE; PS50093; PKD; 2.
                                                                                                                                                                                                                                                                                               Pfam; PF00801; PKD;
                                                                                                                                                                                                                                                                                                                                                               Fritz H.-J., Gottschalk G.;
"The genome of Methanosarcina mazei: evidence
                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-GOe1 / GO1 / ATCC BAA-199 / DSM 3647 / OCM
MEDLINE-22120827; PubMed-12125824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Archaea; Euryarchaeota;
Methanosarcinaceae; Met
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Methanosarcina mazei (Methanosarcina f
Archaea; Euryarchaeota; Methanococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conserved protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  080080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=2209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EQUENCE FROM
                                                                                                                                                                                                                                                                                                                                      Mol.
                                        380
                                                                  132
                                                                                            337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
             191
                                                                                                                                              293 YNNVLRNNTVSKN----DYGIAMIY-----
                                                                                                                     72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                                                                                       12
                                                                                                                                                                                                   70;
                                                                                                                                                                                                                                                                                                                                    Microbiol.
                                                                                                                                                                                                                 Similarity
TINITIKLTDKGNIQIMLPQFKSDARVDLNLRPTGG--GTYIGRNSVDMCFYDGYST-NS
                                                                                                                   CLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCP
                                        NGIILGGASNNNVSNNIASENRRGIYITSGSSGNKVSGN--
                                                                 SGLTLNSA-HFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTY 190
                                                                                           --SSANTVSG-----NKAHSSLNG--GIVLQNCSNNNIISNEATLN-----TGGSTT 379
                                                                                                                                                                       FSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSESHTLYDRMTFL
                                                                                                                                                                                                                                                                   proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LNIADAASLETNWNRITAVTMPEISVPVLCW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VSGETN--ITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGA 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENNE-----LINGDRNSSRINISQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SRYERYOSIPSSFEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKSDSYEIEVFQKKGNEEKTV-YRLRETGEPGTEWKWDLKNQTGDFVSAGTYFCRLTVH-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   L-TDKGNIQIWLPQFKSDARVDLNLRPTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YTYRLIGSDKVKNESISVISDLTIRNEMIGVDMFSDSKIYSYQSGSLKNSARFTFYVSPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SLYLYIPAGELKNLPFGGIWDATLKLRV-----KRRYSETYGT-----YTINITIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VFGESSDYFTGEFLDSEGKV-----VKSY---TWKLKDVPSVLIWDGTDFS-NKQLSNGI 229
                                                                                                                                                                                                5.9%;
nilarity 22.9%;
Conservative 5:
                                                                                                                                                                                                                                                        1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N.A.
                                                                                                                                                                                                                                                        AA;
                                                                                                                                                                                                                                                                                                                                    Biotechnol. 4:453-461(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Methanosarcina
                                                                                                                                                                                                                                                        112882 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NDLLRIYLSHQGIPLQSW
                                                                                                                                                                                                52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                Score 110.5;
Pred. No. 6.8;
                                                                                                                                                                                                                                                                                                                                                   Archaea."
                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                      DB84642718DF2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         frisia)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Methanosarcinales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            328
                                                                                                                                             -SNNNNVVNN--TASDNNRGIYLAYT-- 336
                                                                                                                                                                                                                              DB 17;
                                                                                                                                                                                                   115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -SKE-SFNLDLSLSTKEFSPDNDGK
                                                                                                                                                                                                                                                                                                                                                                for
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                                                                                                                                                                                                                                               lateral gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                            88;
                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GGTYIGRNSVDM
                                                                                                                                                                                                   69;
```

Gaps

71

131

Search	Db	Qy	Db	Qy	рь
Search completed: August 19, 2003, 09:48:13 Job time : 105 secs	532 NNISSN 537	304 ASLETN 309	472 KGIYVMTSNGNTISENEVYNNNVDVDNSNGIMISLSSNNKVSGNKAYNNPYGISLNSSTN 531	248 SSLEIRFQDNNPKSDGKFYLRKIN-DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADA 303	419 TLNSNTGHGIYLENAGTDNNLSSNVASSNGVYGIYL-VNSNNTALFNNIATGNS 471

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               otal number of hits satisfying chosen parameters:
        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1536.5
988.5
927.5
116.5
                                                                                     100.5
100.5
99.5
99.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq
                                                                                                                                                                        108
107
107
106
101
101
101
101
101
101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Issued_Patents_AA:*
1: /cgn2_6/ptodata/1,
2: //gn2_6/ptodata/1,
3: /cgn2_6/ptodata/1,
4: //gn2_6/ptodata/1,
5: //gn2_6/ptodata/1,
6: //gn2_6/ptodata/1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-839-894-10
1886
1 MNKILFIETLFFSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 August 19, 2003, 09:45:04; Search time 30 Seconds (without alignments) 509.141 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           328717 seqs, 42310858 residues
    MNKILFIETLFFSSVLFTFA......EAGQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/1/1aa/5A_COMB.pep:*
/cgn2_6/ptodata/1/1aa/5B_COMB.pep:*
/cgn2_6/ptodata/1/1aa/6A_COMB.pep:*
/cgn2_6/ptodata/1/1aa/6B_COMB.pep:*
/cgn2_6/ptodata/1/1aa/6B_COMB.pep:*
/cgn2_6/ptodata/1/1aa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/1/1aa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.6 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                     US-08-483-101-17
US-08-483-101-16
US-08-483-101-16
US-08-617-697-10
US-08-617-697-10
US-09-206-942-39
US-09-206-942-45
US-09-242-913B-15
US-09-206-942-45
US-09-206-942-45
US-09-206-942-33
US-09-206-942-33
US-09-206-942-34
US-09-206-942-35
US-09-206-942-36
US-09-206-942-37
US-09-206-942-37
US-09-206-942-39
US-08-719-641-9
US-09-206-942-32
US-09-206-942-32
US-09-206-942-32
US-09-206-942-32
US-09-206-942-59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
Sequence
                                                                                                                                                                                                                                                                                                                                      sequence
sequence
sequence
sequence
sequence
sequence
sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                                                                                                              Sequence
Sequence
17, Appl 10, Appl 11, Appl 11,
```

рb	34 FB 10	CS.		
	Query Ma Best Loo Matches	S-08-483- S-08-483- Sequence Sequence Sequence Appli A		2228 2228 2228 2329 2329 2329 2329 2329
1 1 M — M	/ Match Local Simi nes 289;	JUT 1 3-483-101-17 Juence 17, Appleant N. 5932 EMERAL INFORM APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: APPLICANT: COUNTY: FORMATE: COUNTY: COUNTY: COMPUTER REAMEDING TY COMPUTER REAMEDING TY COMPUTER REAMEDING TY COMPUTER REAMEDING TY COMPUTER: CORECTANTING SOFTWARE: CURRENT APPLICATIO FILING DAT CLASSIFICA ATTORNEY/AGE REGISTRAIT REFERENCE/ TELEPHONG TELEP		9999 999999999999999999999999999999999
MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE 	larit Conse	7)1icat 7)15 7)1icat 7)17 7)1icat 7)10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		
LFFSSVL	81.5 y 80.1 rvative	Cation US/08483 ON: ON: ON: June R. Deblich, Barbara Con, Judy IION: CS2 Prote NCES: 17 ADDRESS: 17 ADDRESS: Floppy disk Flopp		977 983 1912 2353 2353 2353 2354 2411 715 901 1167 1167 1900 1073 1079
18 12 18 	w °. ∵.	US/08483: e R. Barbara y Sarbara y i disk clan Circ. C-DOS/MS CC-DOS/MS TAR 11995 i-1995 i-19		44100044444
AVSADI AVSADI	Score Pred. 3; Mi	101 ner 11e, 83,	AL:	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
(IPGDE	re 1536.5 d. No. le Mismatche	and P.C Suit	ALIGNMENTS	-206-942-53 -206-942-51 -409-995-4 -685-45-3 -377-155-3 -913-942-4 -669-974-33 -913-942-4 -268-347-36 -462-917A-13 -134-001C-5 -134-001C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -134-01C-5 -184-23-6 -590-554A-6 -184-23-6 -590-554A-6 -252-991A-3 -206-942-4 -206-942-4 -206-942-4
ESITNI : :	5.5; 1e-14 thes	d Coding .C. ite 201 Version	STV	942-53 995-4 995-4 995-4 974-3 974-3 347-3 347-3 347-3 9917-1 9918-1
FGPRD IGPHD	DB 2; 19; 38;	#1.30		1553 1551 157 157 157 157 157 157 157 157 15
RNES RGGS	Lengt Indels	· O		
SPKHN : SPIYN	Length ndels			99 S S S S S S S S S S S S S S S S S S
AILNSY ::	360; 1;			sequence
TFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE :: : :: TFAVSADKNPGSENMTNTIGPHDRGGSSPIYNILNSYLTAYNG	Gaps			153 153 153 153 153 153 153 153 153 153
G 60				Appl Appli Appli Appli Appli Appli Appl Appl
5 5	1;		•	ほんよりょうほんほ あんりょう みんぱい

```
; MOLECULE TYPE:
; HYPOTHETICAL:
US-08-483-101-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-483-101-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
             Best Local Similarity Matches 204; Conserv
                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 16, Application US/08483101 Patent No. 5932715
                                                                                                                                                                        TELEFAX: (303) 499-80 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 363 amino acids
                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Rclease #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: 6-
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: CS2 Proteins and Coding NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/01
FILING DATE: 07-JUN-1995
                                                                                                                     STRANDEDNESS:
                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                           NAME: Ferber, Donna M. REGISTRATION NUMBER: 3
                                                                                                                                                                                                    TELEPHONE:
                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Boulder
                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361 L 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360 L 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                          80303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RRYDTTYGTYTINITVNLTDKGNIQIWLPQFKSNARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -NTASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVKNPEAGEYSGILNVTFTPSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGYSTNSSSLEIRFQDDNSKSDGKFYLKKINDDSKELVYTLSLLLAGKNLTPTNGQALNI
                                                                                                                                                                                                                                                                                                                                                                                                                                 Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                          5370 Manhattan Circle, Suite 201
                                                                                                                                                                                      (303) 499-8089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caron, Judy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scott, June R. Froehlich, Bar
                Conservative
                                                                                                           unknown
                                                                              : protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Greenlee and Winner, P.C.
                                                                                                                                                                                                     (303)
                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                                    499-8080
                           52.4%; Score 988.5; 55.0%; Pred. No. 2.
                                                                                                                                                                                                                                                                                                            US/08/483,101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barbara
                                                                                                                                                                                                                                           33878
               53;
                                                                                                                                                                                                                                6-95
               Mismatches
                                                                                                                                                                                                                                                                                                                                     Version
                             2.9e-93;
                                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequences
                                      Length 363;
               Indels
               21;
               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
               11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 3
US-08-483-101-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                     US-08-483-101-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
Best Local Similarity Matches 176; Conserv
                       Query Match
                                                                                                                                  TELEFAX: (303) 499-80 INFORMATION FOR SEQ ID NO:
                                                                 TYPE: amino TOPOLOGY: li MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                      LENGTH: 364 amino acids
                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 5370 N
                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    353 KITFTPSSQTL 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351 NVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     58
                                                                                                                                                                                                                                                                                                                                                                80303
                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                        Colorado
                                                                                                                                                                                                                                                                                                                                                                           SD
 Conservative
                                                                              linear
49.2%; Score 927.5; DB 2;
48.1%; Pred. No. 5.5e-87;
tive 65; Mismatches 118;
```

```
; Sequence 5, Application US/08483101
Patent No. 5932715
; GENERAL INFORMATION:
APPLICANT: Scott, June R.
APPLICANT: Froehitch, Barbara
APPLICANT: Caron, Judy
TITLE OF INVENTION: CS2 Proteins ar
UMBER OF SEQUENCES: 17
                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/
FILING DATE: 07-UN-1995
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Ferber, Donna M.
REGISTRATION NUMBER: 33878
                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 6-
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: LEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    231 GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVS-GETNITLQFTEKRSLIKRELQI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LKLRVKRRYSET----YGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYI 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGNKKPIWENQSCDFSNLWVLNSKSWSCGAHGNANGTLLNLYIPAGEINKLPFGGIWEAT 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YPVNGQSFTINDSSYLETNWNRYTAVAMPEVNVPVLCWPARLLLNADVNNPEAGQYMGNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSNSLDMCFYDGYSTNSDSMVIKFQDDNPTNSSEYNLYKIG-GTEKLPYAVSLLMGEKIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LILRLS-RYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNPRVDLNLRPIGNYKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KGYKQLLFKSVNCPSG--LTLNSAHFNCNKNA-ASGASLYLYIPAGELKNLPFGGIWDAT 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KKIFIFL----SIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQSPIYNIFTNHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KILFIFTLFFSSVLFTFAVSADKIPGDE--SITNIF-GPR-DRNESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EE: Greenlee and Winner, 5370 Manhattan Circle,
                                                                                                                                                                                                                                   (303) 499-8080
                                                                                                                                                                                3) 45
) 499-8089
) NO: 5:
                                                                                                                                                                                                                                                               4.
33878
6-95
                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/483,101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequences
Length
    364;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57
```

Gaps

```
ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 4
US-08-617-697-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
                                    TELEFAX: (703) 415-0813
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC -DOS/MS-DOS
AT 1 0
                  SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
                                                                                            REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                    CLASSIFICATION: 424
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Berkstresser Jerr
                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                            NAME: Berkstresser, Jerry W
REGISTRATION NUMBER: 22,651
                                                                                                                                                                                                                                              APPLICATION NUMBER: US 0 FILING DATE: 05-OCT-1994
                                                                        TELEPHONE:
                                                                                                                                                                                          APPLICATION NUMBER: US PCT/US93/02166 FILING DATE: 16-MAR-1993
                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: 01-AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119 GYKQLLFKSVNC---PSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATL 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        356 PSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                296 TSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10, Application US/08617697
5. 5977336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Virginia
TRY: U.S.A.
22202-0286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arlington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SESHTLYDRWTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSSSSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EAFTINDTSSLFINWNRIKSVSLPQISIPVLCWPANLTFMSELNNPEAGEYSGILNVTFT: 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMCLYDGYSTHSQSIEMRFQDDSQTGNNEYNLIKTGEPLKKLPYKLSLLLGGREFYPNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GYKRFLYESDRCIHYVDKMNLNSHTVKCVGSFTRGVDFTLYIPQGEIDGLLTGGIWEATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NKDHSLFDRMTFLCMSSTDASKGACPTGENSKSS--QGETNIKLIFTEKKSLARKTLNLK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTESIGPIDRSAAASYPAHYIFHEHVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRN--ESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001 Jefferson Davis Hwy.,
600 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barenkamp, Stephen J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shoemaker and Mattare, Ltd.
01 Jefferson Davis Hwy., 1203
                                                                          (703)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                            01-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        High Molecular Weight Su
of No. 5977336-Typeable
                                                                        415-0810
                                                                                                                                                                                                                                                                                                                                                                                    Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                    US 08/302,832
                                                                                                                                                                                                                                                                                                                                              US/08/617,697
                                                                                                                1038-557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crystal Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Proteins
le Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58
```

```
; STRANDEDNESS: single; TOPOLOGY: linear US-08-617-697-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ζŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-362-525-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION:
ATTORNEY/AGENT INFORMATION
                                                PRIOR APPLICATION DATA:
                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                            APPLICATION NUMBER: FILING DATE: 14-DE
            APPLICATION NUMBER: PCT/EP93/01763 FILING DATE: 07-JUL-1993
                                                                                                                 FILING DATE: 08-JUL-1992
                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 04-JA
                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   312 RITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923 TFTNNGTANINIKGVVKLGDINNK--GG------LNITTNASGTQKTIINGNIT---NE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              816 YNEYSKH--AINSSHNL-----TILGGNVTLGG-----ENSSSSITGNINITNKANVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48 HNILNNHITAYSESHTLYDRWTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                          20005-3918
                                                                                                                                                                                                                                                                                                                          D. C.
V. U.S.A.
1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08362525
6027910
                                                                                                                                                                                                                                                                                                                                                                        Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     K---VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SDSSEAENANLTIQ-----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGGNADAK 1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KGNIQIWLPQFKSDARVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---KNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGT-YTINITIKLTD 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSIAEDSTFKGEASDNLNITG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QF-----TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTL-----NSAHFNCN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KGDLNI--KNIKADAEIQIGGNISQKEGNLTISSDKVNI-----TNQITIKAGVEGGR 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -DNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWN
                                                                                                                                                                                                                                                                                                                                                                                            1100 New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERRIPS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCHREUDER, MAARTEN P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOSCHKA, HOLSER Y.
                                                                                                                                                                                                                                                                                                                                                                                       CUSHMAN DARBY & CUSHMAN, L.L.P.
                                                                                                                                                                       .....век: US/08/362,525
04-JAN-1995
V: //эг
                                                                14-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FRANCISCUS M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORNELIS T.
PROCESS FOR IMMOBILIZING ENZYMES TO THE
CELL WALL OF A MICROBIAL CELL BY PRODUCING
PROTEIN
                                                                                                                                   EP 92202080.5
                                                                                                                                                                                                                                     Release #1.0,
                                                                                EP 92203899.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 116.5; D
Pred. No. 0.02;
                                                                                                                                                                                                                                        Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A FUSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
US-09-206-942-41
                                                                                                                                                                                                                                                                                                                    us-09-206-942-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; MOLECULE TYPE: protein US-08-362-525-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                              SEQ ID NO 41
                                                                                                                                                                                                                                                                                    Sequence 41, Application US/09206942
Patent No. 6432669
                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                          CURRENT APPLICATION NUMBER: US/09/206,942 CURRENT FILING DATE: 1998-12-08 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER OF SEQ ID NOS: 95
                                                                                                                                                                         TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae TITLE OF INVENTION: Molecular Weight Proteins FILE REFERENCE: 1038-861 MIS:jb
                                                                                                                                                                                                                        APPLICANT: LOOSMORE, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                             SOFTWARE: PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
           ORGANISM: Haemophilus influenzae
                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 16,773
REFERENCE/DOCKET NUMBER: 21:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 861-3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    / Match 6.0%; Score 114; DB 3; Length 650; Local Similarity 20.9%; Pred. No. 0.0085; ses 98; Conservative 52; Mismatches 147; Indels 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CENGTH:
                               PRT
                                                                                                                                                                                                                                                                                                                                                                                     396
                                                                                                                                                                                                                                                                                                                                                                                                                     305
                                                                                                                                                                                                                                                                                                                                                                                                                                                  336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44
                                              1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
)GY: linear
                                                                                                                                                                                                                                                                                                                                                                                     IYSTDSNITVGTDIHTTSEVISDVETISRETASTVVAAPTSTTGWTGAM 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMPHVYRIKLLNSSQTATISLADGTEAFKCYVSQQAAYLYENTTFTCTAQNDLSSYNTID 127
                                                                                                                                                                                                                                                                                                                                                                                                                  WVNALQSLPANVNTIDHALEFQYTCLDTIANTTYATQFSTTREFIVYQGRNLGTASAKSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNC-PSGLTLNSA 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILFIFTLFFSSVL----FTFA-----VSADKIPG-----DESITNIFGPRDRNE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X: (202) 822-0944
6714627 CUSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                  FISTTTTDLTSINTSAYSTGSISTVETGNRTTSEVISHVVTTSTKLSPTATTSLTIAQTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YLRKINDDTKEI --- AYTLS ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --DCSSVQVYSSNDFNDWWFPQSYNDTNADV-----TCFGSNLWITLDEKLYDGEML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTDKGNIQI-----WLPQFKSDARVDLNLRPTGGGTYIGRN---SVDMCFYDG--- 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HFNCNKNAASGASLYL--YIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIK 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSITFSLNFSDGGSSYEYEL----ENAKFFKSGPMLVKLGNQMSDVVNFDPAAFTENVF 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSP---KHNILNNHITA------YSESHTLYDRMTFLC-----LSSHNTLN 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ILWLFSLALASAININDITFSNLEITPLTANKQPDQGWTATFDFSIADASSIREGDEFTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSGRSTGYGSFESYHLGMYCPNGYF----LGG----TEKI-----DYDSSNNNVDL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                650 amino acids
                                                                             Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  213289/T7020(V)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----YSTNSSSLE--IRFQDNN--PKSDGKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                             밁
                                                                                                      δÃ
                                                                                                                                           밁
                                                                                                                                                                       δõ
                                                                                                                                                                                                       В
                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-206-942-39
                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 1011
TYPE: PRT
                                         219
             538
                                                                           478
                                                                                                                                           425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68;
```

```
; ORGANISM: Haemophilus influenzae US-09-206-942-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 39, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS:jb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: LOOSMOTE, Sheena
APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER FILING DATE: 1998-10-07 NUMBER OF SEQ ID NOS: 95
                                                                                                                                                174 TLKLRVKRRYSETYGTYTINITIKLTD------KGNI-----QIWLPQFKSDARVD 218
                                                                                                                                                                                                                                                                                                            369 EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       641 TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV 675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     333 QLDAKVENPEA-----GQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           219 L--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKINDDTK 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    472 TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    174 TLKLRVKRRYSETYGTYTINITIKLTD------KGNI-----QIWLPQFKSDARVD 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419 -- RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF----- QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          363 EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                                                                                                                                                                                                                                                                                                                             60 ESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRS-LIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60 ESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRS-LIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EIAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL
                                                   L--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKINDDTK
                                                                                                                                                                                                                                                    GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IGGNISQKEGNLTISSDKINI-----TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA 173
IGGNISQKEGNLTISSDKINI---
                                                                                                   TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                                                                                      --RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF-----QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV
                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sheena M.
                                                                                                                                                                                                                                                                                                                                                                                                                                     5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65;
                                                                                                                                                                                                                                                                                                                                                                                                                65;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 111.5; DB 4;
Pred. No. 0.031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 111.5; DB Pred. No. 0.031;
                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
-TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1005;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55;
                                                                                                                                                                                                                                                                                                                                                                                                                55;
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
  588
                                                   275
                                                                                                      537
                                                                                                                                                                                                            477
                                                                                                                                                                                                                                                                                                            424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             418
```

Ş 밁

TNQITIKAG 946

```
US-08-728-470-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 8
US-08-728-470-10
                                                                                                                                                                                           Query Match
Best Local S
Matches 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Rel CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Berkstresser, Jerry W
REGISTRATION NUMBER: 22,651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 16-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 0 FILING DATE: 16-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: Arlington
                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10, AF 5928651
                                                                                                                  744
155 LYIPAGELKNLPFGGIW--DATLKLRVKRRYSETYGTYT----INITIKLT---
                                                                                                                                                                                                             Similarity
                                       QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSI--AEDSTFKGEAS----
                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                YNEYSKH--AINSSHNL-----TILGGNVTLGG----ENSSSSITGNINITNKANVTL
                                                                                                                                                   HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QLDAKVENPEA-----GQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EIAYTLSLLLAG----KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08728470

    Shoemaker and Mattare, Ltd.
    2001 Jefferson Davis Hwy., 1203 Crystal Plaza

                                                                                                                                                                                                                                                                                                                                             1529 amino acids
                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                          (703)
                                                                                                                                                                                                                                                                                                                                                                                                                          (703)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JMBER: GB 9205704.1
16-MAR-1992
                                                                                                                                                                                                                                                                                                         single
                                                                                                                                                                                                                                                                                                                                                                                        ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                        415-0813
                                                                          TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLY 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     High Molecular Weight Surface Proteins of No. 5928651-Typeable Haemophilus
                                                                                                                                                                                                             5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/302,832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US PCT/US93/02166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Stephen J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/728,470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22,651
                                                                                                                                                                                           62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1038-633
                                                                                                                                                                                                           Score 111.5; DB 2; Pred. No. 0.061;
                                                                                                                                                                                           Mismatches
                                                                                                                                                                                           127;
                                                                                                                                                                                           Indels
                                                                                                                                                                                                                            Length 1529;
                                                                                                                                                                                           87;
                                                                                                                                                                                         Gaps
                                       843
                                                                                                                790
                                                                                                                                                     102
 В
                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-719-641-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                     US-08-719-641-10
                                                                          Query Match
Best Local S
Matches 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 10
Patent No.
                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 22,651
REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US PETLING DATE: 16-MAR-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 0 FILING DATE: 16-SEP-1994
                                                                                                                                                                                         TYPE: amino aci
                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                               NAME: Berkstresser, Jerry REGISTRATION NUMBER: 22,6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Arlington .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 2001 :
STREET: Bldg.
                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: GB 9205704.1 FILING DATE: 16-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                            CENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1002 NADAKK---VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST 1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10, 53
621814:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             844
 744 YNEYSKH--AINSSHNL-----TILGGNVTLGG-----ENSSSSITGNINITNKANVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION:
                                     48 HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL 102
                                                                          . Similarity 72; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22202-0286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NITNEKGDLNI -- KNIKADAEIQIGGNISQKEGNLTISSDKVNI ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FQ----DNNPKSDGKFYLRKINDDTKETAYTLSLLLAG---KSLTPTNGTSLNIADAASL 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ETNWNRITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VEGGRSDSSEAENANLTIQ -----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGG 100:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----DKGNIQIWLPQFKSDARVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIR 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----DNLNITGTFTNNGTANINIKQGVVKLQGDINNKGGLNITTNASGTQKTIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/08719641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3: Shoemaker and Mattare, Ltd.
2001 Jefferson Davis Hwy., 1203 Crystal Plaza
                                                                                                                                                                                                                            1529 amino acids
                                                                                                                                                                                                                                                                                        (703)
                                                                          5.9%; Score 111.5; DB 3; llarity 20.7%; Pred. No. 0.061; Conservative 62; Mismatches 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barenkamp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                         (703)
                                                                                                                                                                                       single
                                                                                                                                                                                                                                                                                    415-0813
                                                                                                                                                                                                                                                                                                       415-0810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 np, Stephen J
High Molecular Weight Surface Proteins
of No. 6218141-Typeable Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US PCT/US93/02166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US 08/302,832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/08/719,641
                                                                                                                                                                                                                                                                    10:
                                                                                                                                                                                                                                                                                                                                               .038-625
```

δÃ

밁 Š

Length

1529; 87;

Gaps

18

Ş 밁

```
Š
                                                                                        밁
                                                                                                                                Š
                                                                                                                                                                              밁
                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
US-09-242-913B-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 15
LENGTH: 524
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 15, Appl Patent No. 655181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Saccharomyces cerevisiae -09-242-913B-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/024,910 PRIOR FILING DATE: 1996-08-30 NUMBER OF SEQ ID NOS: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE REFERENCE: 05986-0007
CURRENT APPLICATION NUMBER: US/09/242,913B
CURRENT FILING DATE: 1999-10-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: HARTIAND, ROBBERT
APPLICANT: MOUYNA, ISABELLE
APPLICANT: LATGE, JEAN-PAUL
TITLE OF INVENTION: METHOD FOR SORTING ANTIFUNGAL MOLECULES
TITLE OF INVENTION: GLUCANOSYLTRANSFERASE ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: PCT, PRIOR FILING DATE: 1997-08-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uery Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: FONTAINE, THIERRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1002 NADAKK---VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST 1046
                                                                                          419
                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       947
476
                                                                                                                                                                                                                                                                                                               174 TLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSD-ARVDLNLR----PTGGGT 228
                                                                                                                                                                                                                                                                                                                                                           264 GYDKLNSTFEDAVIP----LIFSEYGCNKNTPRTFDEVSEGLY---GGLKNVFSGGL---
                                                                                                                                                                                                                                                                                                                                                                                                   119 GYKQL--LFKSVNCPSGLTLNSAHFNCNKNAA---SGASLYLYIPAGELKNLPFGGIWDA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                      69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                        YIGRNSVDMC-----FYDGYSTNSSSLE-----IRFQDNNPKSDGK------
                                                                                                                                                                                                                                                                     -----VYEYTEEANNYGL---VKLDDSGSL----TYKDDFVNLESQLKNVSLPTTKES
SSSTGSSSSTG----SSSASSSSKSKGVGNIVNVSFSQS 510
                                            EISVPVLCWPGRLQLDAKVENPEAGQYMGNI-NVTFTPS
                                                                                                                                                                              EISSDSIYKCDNSAITNIYSGFGTNNFTLPSQPAEIANMIEYGVNGTNT-GKILTDYAVP 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETNWNRITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NITNEKGDLNI--KNIKADAEIQIGGNISQKEGNLTISSDKVNI-----TNQITIKAG 946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----DKGNIQIWLPQFKSDARVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIR 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LYIPAGELKNLPFGGIW--DATLKLRVKRRYSETYGTYT----INITIKLT------
                                                                                      TTFNYTIKNNKDDT---ISATISYDKA-NSLNELDVTATTVAKSASTSQSSSRSLTSSTSP
                                                                                                                             ----FYLRKINDDTKETAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNR-ITAVTMP 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VEGGRSDSSEAENANLTIQ-----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGG 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FQ----DNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG---KSLTPTNGTSLNIADAASL 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSI--AEDSTFKGEAS----- 843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QF-----TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLY 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/09242913B
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----DNLNITGTFTNNGTANINIKOGVVKLQGDINNKGGLNITTNASGTQKTIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.7%; Score 108; DB 4; Length 524; 24.7%; Pred. No. 0.025;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCT/FR97/01540
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                    96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTING
                                                                                                                                                                                                                                                                                                                                                                                                                                                 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                        475
                                                                                                                                                                                                                                                                     359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199
                                                                                                                                                                                                                                                                                                                                                             313
                                                                                                                                                                                                                        264
```

RESULT 11

```
APPLICANT: Kang, Yan-Ping
APPLICANT: Klein, Michel H.

TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Protective Recombinant Factorial Fille OF INVENTION: Molecular Weight Proteins
TITLE REPERENCE: 1038-861 MIS:jb
CURRENT FILING DATE: 1998-12-08
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER OF SEQ ID NOS: 95
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 45
LENGTH: 1095
TYPE: PRT
ORGANISM: Haemophilus influenzae
US-09-206-942-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
US-09-206-942-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-206-942-45
Query Match
Best Local Similarity
Matches 71; Conserv
                                                                                                                                                                                SOFTWARE: P
SEQ ID NO 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 43, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 45, Applion Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS:jb
                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: LOOSMORE, Sheena APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                          EARLIER FILING DATE: 1998-10-07 NUMBER OF SEQ ID NOS: 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Loosmore,
                                                                                                               TYPE: PRT ORGANISM:
                                                                                                                                                           LENGTH: '1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210 QFKSDARVDLNLRPTGGGTYIGRN-----SVDMCFYDGYSTNSSSLEIRFQDNNPKSD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154 YLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTI----NITIKLTDKGNIQIWLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94 VSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45 SPKHNILNNHITAYSESHTLYD------RMTFLCLSSHNTLNGACPTSENPSSSS 93
                                                                                                                                                                                                   PatentIn Ver. 2.1
                                                                                                               Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IAKGGAHFKDIN-NTKSLNITTNSDSAYRTIIEG-NITNSNG-DLNITD 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---GKFYLRKINDDTKETAYTLS-----LLLAGKSLTPTNGTSLNIAD 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIRGNVTNKGNLTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGL----FDNQGKSNIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NLOKSLVANKNITFEG---GNITLAADKKPIEIKGNITVKEGANVTLRSANYGNDKSAL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GS----SLRF-----KSEGSTRTAF---TIESDLTLNATGGNISLNQVAGIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIKPPIVSN---VHDGNHTLFNGNVSVLGGGDVNFHFNASSSNHWTHGVVIKSQNFNASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09206942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.7%; Score 107; ilarity 24.6%; Pred. No. 0. Conservative 44; Mismatche
    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sheena M.
                    5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8; Score 107; DB 4; Length 108; Pred. No. 0.1;44; Mismatches 110; Indels
      44;
  Score 107; DB 4; Length 1101; Pred. No. 0.1; 4; Mismatches 110; Indels 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4; Length 1095;
    64;
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            337
    15
```

```
Query Match
Best Local Similarity
Thes 73; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                              ; IMMEDIATE SOURCE:
; CLONE: Fig.5a (S.
US-08-737-716-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 13, Application US/08737716 Patent No. 5955258
                                                                                                                                                                                                                          FILING DATE: 12-MAY-19
INFORMATION FOR SEQ.ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ULT 13
08-737-716-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 20005-3918
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Jan KOK
APPLICANT: Adrianus Marinus LEDEBOER
TITLE OF INVENTION: Process for the lysis of a culture
TITLE OF INVENTION: acid bacteria by means of a lysin,
more of invention: lysed culture.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                         MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: FILING DATE: 22-APF CLASSIFICATION: 435
                                                                                                                             ORGANISM:
                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: PCT/
FILING DATE: 12-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER:
                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Pillsbury Madison & Sutro, L.L.P. STREET: 1100 New York Avenue, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Washington
                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IAKGGAHFKDIN-NTKSLNITTNSDSAYRTIIEG-NITNSNG-DLNITD 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIRGNVTNKGNLTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGL----FDNQGKSNIS 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NLOKSLVANKNITTEG---GNITLAADKKPIEIKGNITVKEGANVTLRSANYGNDKSAL- 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLYIPAGELKNIPFGGIWDATIKLRVKRRYSETYGTYTI----NITIKLTDKGNIQIWIP 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASL 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIKPPIVSN---VHDGNHTLFNGNVSVLGGGDVNFHFNASSSNHWTHGVVIKSQNFNASE 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---GKFYLRKINDDTKEIAYTLS-----LLLAGKSLTPTNGTSLNIAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QFKSDARVDLNLRPTGGGTYIGRN-----SVDMCFYDGYSTNSSSLEIRFQDNNPKSD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GS-----SLRF------KSEGSTRTAF---TIESDLTLNATGGNISLNQVAGIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SPKHNILNNHITAYSESHTLYD------RMTFLCLSSHNTLNGACPTSENPSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D.C.
                                                                                                                                                                                                          671 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gerard VENEMA
                  Conservative
                                                                                                                             Streptococcus faecalis
                                                                                                                                                                                                                                                                                                                                                                                                                       Microsoft Word
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Girbe BUIST
                                                                                                                                                                                                                                                                                                                                                                                                                                     IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                           linear
                                                                                                                                                                                                                                                           12-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                       22-APR-1997
                            5.6%; Score 106; DB 2
23.6%; Pred. No. 0.059;
                                                                                             faecalis)
                                                                                                                                                                                                                                                                                                                                                                                       US/08/737,716
                                                                                                                                                                                                                                                                          EP 94201353.3
                                                                                                                                                                                                                                                                                                                         PCT/NL95/00170
                                                                                                                                                                                                                                            13:
                39;
                Mismatches
                                           DB 2; Length 671;
                  103;
                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of lactic
                94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302
               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of the resulting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93
                17;
                                                            Ωy
                                                                                             Вþ
                                                                                                                                                            뮹
                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                              멍
                                                                                                                            δÃ
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δô.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Haemophilus influenzae US-09-206-942-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-206-942-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 35
LENGTH: 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 35, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: LOOSMOTE, Sheena APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER APPLICATION NUMBER: EARLIER FILING DATE: 1998-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/CURRENT FILING DATE: 1998-12-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                        Local
                               438
272 DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGR 331
                                                              218
                                                                                             420
                                                                                                                             158
                                                                                                                                                          372 GLTITAKNVTVNN--NITSHKTVNITASENVTTKAGTTIN-----ATTGSVEVTA 419
                                                                                                                                                                                           101
                                                                                                                                                                                                                           312 NSNLTIGDNSDAGNTDAKKVTFSNVKDSKISASDHNVTLNSKVETSGDTDSTEDGGNNNT 371
                                                                                                                                                                                                                                                                                        252 ISSDKVNITERITIKAGVNGDNSDSNEATSANLTIKTKELKLTNDLNISGFNKAEITAKD 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 552 SNGGSNNNQ 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                               60 ESH-TLYD-----RMTF------LCLSSHN-TLNGACPTSENPSSSSVSGETNI 100
                                                                                                                                                                                                                                                                                                                        21 VSADKIPGDESITNIFGPR----DRNESSPKH------NILN-----NHITAYS
                                                                                                                                                                                                                                                                                                                                                       84;
                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                     TLQFTEKRSLIKRELQIKGYKQL---LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYI 157
                               ----TASGDTLNVSNITGQN-VTVAAASGAVTTTKGSTINATTGNANITTK--TGEIN
                                                              DLNLRPTGGGTYI-----GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIN 271
                                                                                             KTGDIK----GGI----
                                                                                                                          PAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARV 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASLETNWNR 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PKSDGKFYLRKINDDTKEIA--YTLS----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              W----NGISGDLIFVGQKLIVKKGTSGNT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -QSGTNTYYTVKSGDTLN--
                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sheena M.
                                                                                                                                                                                                                                                                                                                                                                     5.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09/167,568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/09/206,942
                                                                                                                                                                                                                                                                                                                                                         48;
                                                                                                                                                                                                                                                                                                                                                                     Score 101; DB
Pred. No. 0.32;
                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                      DB 4;
                                                                                                                                                                                                                                                                                                                                                         129;
                                                                                             ---ESNSGNVNI--
```

```
147 AASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQI 206
QSGTNTYYTIKSGDTLNKIAAQYGVSVANLRSWNGISGDLIFAGQKIIVKKGTSGNTGGS 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGET -- NITLQF -- -- TEKRSL -- IKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKN 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RYATDPSYNAKLNNVITAY -- NLTQYDTPSSGGNTGGGTVNPGTGGSNNQSGTNTYYTVK 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RNESSPKHNI-LNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENRSSSSY-----
                                                                                                                                                                                                                                        WLPQFKSDARVDLNL------RPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNN 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SGDTLNKIAAQYGVSVANLRSWNGISGDLIFVGQKLIVKKGA---SGNTGGSGNGGSNNN 423
                                                                                                                                                                                                                                                                                                                         -KIAAQYG-----VTV----ANLRS
                                                                                                                                                            ----GGSSNGGS----NNN
                                                                            LLLAGKSLTPTNGTSLNIADA 303
                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                            491
```

TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS: jb Length 915;

Indels

138;

Gaps

59

```
TITLE OF INVENTION: Mcleular Weight Proteins

FITLE OF INVENTION: Mclecular Weight Proteins

FILE REFERENCE: 1038-861 MIS:jb

CURRENT APPLICATION UMMBER: US/09/206,942

CURRENT FILING DATE: 1998-12-08

EARLIER APPLICATION NUMBER: 09/167,568

EARLIER AILING DATE: 1998-10-07

NUMBER OF SEQ ID NOS: 95

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 37

LENGTH: 1222

TYPE: PRT

ORGANISM: Haemophilus influenzae

US-09-206-942-37
Search completed: August 19, 2003, 09:49:35 Job time : 32 secs
                                                                                                                                            δÃ
                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 15
US-09-206-942-37
Sequence 37, Application US/09206942
Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 5.4%; Score 101; DB 4; Length 1222; Best Local Similarity 21.1%; Pred. No. 0.51; Matches 84; Conservative 48; Mismatches 129; Indels 138; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: LOOSMOTE, Sheena
APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
                                                                                                                                                                                                           796
                                                                                                                                                                                                                                                                                                                                                                                                               727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         679 GITITAKNUTUNN--NITSHKTUNITASENUTTKAGTTIN-----ATTGSVEUTA 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101 TLQFTEKRSLIKRELQIKGYKQL---LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYI 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619 NSNLTIGDNSDAGNTDAKKVTFSNVKDSKISASDHNVTLNSKVETSGDTDSTEDGGNNNT 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489 GEVKSASGNVNITASGNTLNVSNITGQNVTVTAN-----SGAITTTEGST------ 533
                                                                                                    841 -- INATTGDANITTQTGNINGKVESSSGSVTLIATGQTL 877
                                                                                                                                                    332 LQLDAKVENPEAGQYMGNIN------VTFTPSSQTL 361
                                                                                                                                                                                                                                                      272 DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGR 331
                                                                                                                                                                                                                                                                                                                                                          218 DLNLRPTGGGTYI-----GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIN 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                            158 PAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARV 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   559 ISSDKVNITERITIKAGVNGDNSDSNEATSANLTIKTKELKLTNDLNISGFNKAEITAKD 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  534 --INATTGDANITTQTGNINGKVESSSGSVTLIATGQTL 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60 ESH-TLYD-------RMTF------LCLSSHN-TLNGACPTSENPSSSSVSGETNI 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21 VSADKIPGDESITNIFGPR----DRNESSPKH------NILN-----NHITAYS 59
                                                                                                                                                                                                   GEVKSASGNVNITASGNTLNVSNITGQNVTVTAN-----SGAITTTEGST-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LQLDAKVENPEAGQYMGNIN-----VTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                           -----TASGDTLNVSNITGQN-VTVAAASGAVTTTKGSTINATTGNANITTK--TGEIN 795
                                                                                                                                                                                                                                                                                                                                                                                                             KTGDIK----GGI------ 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Loosmore, Sheena M.
```

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             himum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            otal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                            ŏ.
     5
6
7
10
11
11
11
11
11
11
11
11
                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                   1886
1862.5
1542
937
916.5
247.5
119.5
111.5
                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq length: 0 seq length: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length: 2000000000
                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             492763 seqs, 131003257 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MNKILFIFTLFFSSVLFTFA......EAGQYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-839-894-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       August 19, 2003, 09:48:19; Search time 57 Seconds
     81.8
49.7
6.3
13.1
5.9
5.9
5.4
5.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/USO6_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/USO6_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /cgn/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cgn2_6/ptodata/2/pubpaa/US09A_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                           /cgn2_6/ptodata/2/pubpaa/US09B_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US09C_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US09C_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10A_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10B_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10B_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10C_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10C_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cgn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cgn2_6/ptodata/2/pubpaa/PCTUS_PUBCOMB.pep: *
                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/2/pubpaa/US60_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                           Length
   1600
1005
1011
1011
2383
524
915
1222
                                                                                                                                                                                                                                                                            DB
                                                                                                                                                       10
10
0. US-09-839-894-29
0. US-09-839-894-29
0. US-09-839-894-30
0. US-09-839-894-30
0. US-09-839-894-30
0. US-09-839-894-30
0. US-09-303-232-2
0. US-10-193-764-31
2. US-10-193-764-31
2. US-10-193-764-32
2. US-10-193-764-33
2. US-10-193-764-34
                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (without alignments)
829.687 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               492763
            Sequence 10, Appl
Sequence 28, Appl
Sequence 31, Appl
Sequence 31, Appl
Sequence 30, Appl
Sequence 32, Appl
Sequence 30, Appl
Sequence 10, Appl
Sequence 10, Appl
Sequence 41, Appl
Sequence 39, Appl
Sequence 302, Appl
Sequence 35, Appl
Sequence 35, Appl
Sequence 37, Appl
Sequence 37, Appl
                                                                                                                                                                                                                                                                         Description
```

444 543	40	3 3 3 0 3 8 7 0	35.4	ω ω ω ν	30	28 29	26 27	24 25	23	21	19 20	16 17 18
8 8 8 8 8 8 8	0000	ж 9 9 9 9 0 0 0 л Uл U	91.5 91	92.5 91.5		95.5 95		99 99	99	99 99	99.5 99.5	· · c
4 4 4 4 4 7 7 7	4.7	4 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4.4.	4.9								5.5.5 4
465 921 1220 1226	427	1019	1236 1395	1079 1143	2353	825 867	977 983	1848 1848	866	939 993	969 975	1004
10 12	15	15	15	12 10	10	15	12 12	15	12	14	12 12	14 12
US-09-987-021-6 US-09-117-447-6 US-10-193-764-28 US-10-193-764-26	-10-214-524- -09-957-485-	-09-776-191-6 -10-157-031-2 -10-011-588-2	-09-769-787-1 -10-080-505-7	-10-193-764-4 -09-924-154-1	-09-7	-10-101-464A -09-839-894-	US-10-193-764-49 US-10-193-764-47	US-10-080-505-6	-10-193-764-	US-10-023-437-23	US-10-193-764-32 US-10-193-764-30	-10-092-880-9 -10-193-764-5 -10-193-764-5
Sequence 6, Sequence 6, Sequence 28 Sequence 26		Sequence 14, Sequence 64, Sequence 261		Sequence 43 Sequence 14	433		49	Sequence 6,	Sequence 55		Sequence 32 Sequence 30	Sequence 53 Sequence 51

ALIGNMENTS

```
Š
                                                            В
                                                                                              Qy
                                                                                                                                          В
                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                         ; ORGANISM: E. US-09-839-894-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-839-894-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Altboum, Zeev
APPLICANT: Barry, Elleen M.
APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
APPLICANT: University of Maryland
TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION OF THE
TITLE OF INVENTION: CSA OPERON
TILE REFERENCE: UDEND. 006A
                                                                                                                                                                                                                                                                                                                                             SOFTWARE: FASTSEQ for Windows Version 4.0 SEQ ID NO 10 LENGTH: 361 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10, Application US/09839894
Patent No. US20020176868A1
                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/09/839,894
CURRENT FILING DATE: 2001-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE: 2001-04-20 PRIOR APPLICATION NUMBER: 60/198,626 PRIOR FILING DATE: 2000-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS:
121 KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIMDATLKLRVK
                                                                                                                                                                                                                       361;
                                                                                   61 SHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY 120
                                                                                                                                                               1 MNKILFITTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE
                                                                                                                                            1 MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE
                                                              SHTLYDRWTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY
                                                                                                                                                                                                                                                                                                                            coli
                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                      100.0%; Score 1886; DB 10; 100.0%; Pred. No. 1.5e-181;
                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                               Length 361;
                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                       Gaps
                         180
                                                              120
                                                                                                                                            60
                                                                                                                                                                                                                       0
```

```
망
                                                 Q
                                                                                 밁
                                                                                                       ρ
                                                                                                                                            Вр
                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; OTHER INFORMATION: ETEC Protein Homology Sequence US-09-839-894-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: 60/128,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEQ ID NOS: 40
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 28
LENGTH: 361
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 28, Application U
Patent No. US20020176868A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION
TITLE OF INVENTION: CSA OPERON
FILE REFERENCE: UOFMD.006A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/839 CURRENT FILING DATE: 2001-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Altboum, Zeev APPLICANT: Barry, Eileen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                      301
                                                   301
                                                                               242
                                                                                                              241
                                                                                                                                              182
                                                                                                                                                                                                                                      121
                                                                                                                                                                           181
                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                 N
                                                                                                                                                                                                                                                                                                                                                            \vdash
                 ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                                               DGYSTNSSSLEIREQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI 300
                                                                                                                                                                                                                                                                                 SHTLYDRWTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY
                                                                                                                                                                                                                                                                                                                            L 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      L 361
                                                                                                                                                           RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                      KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIMDATLKLRVK 180
                                                                                                                                                                                                                                                                 SHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                               DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG-SLTPTNGTSLNI
                                                                                                                                           RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                      KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DGYSTNSSSLEIREQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09839894
                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                           98.8%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                           Score 1862.5;
Pred. No. 3.6e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                           5; DB 10; Length
.6e-179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                               120
                                                 360
                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                   360
                                                                              300
                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION OF
TITLE OF INVENTION: CSA OPERON
FILE REFERENCE: UOFMO.006A
CURRENT APPLICATION UNMBER: US/09/839,894
CURRENT FILING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEQ ID NOS: 40
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 29
LENGTH: 359
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                           RESULT 4
US-09-839-894-31
                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                       Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; OTHER INFORMATION: US-09-839-894-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 3
US-09-839-894-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 292
 Sequence 31, Application US/09839894
Patent No. US20020176888A1
GENERAL INFORMATION:
APPLICANT: Altboum, Zeev
APPLICANT: Barry, Eileen M.
APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 29, Application U Patent No. US20020176868A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Altboum, Zeev APPLICANT: Barry, Eilee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                         359
                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                    361 L 361
                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l Similarity
292; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ľ
                                                                                                                                                                       r
                                                                                                                                                                                                                                                                                                               DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                           RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       r-
                                                                                                                                                                                                                                    -NTASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVKNPEAGQYMGNIKITFTPSSQT
                                                                                                                                                                                                                                                                                               DGYSTMSSSLEIRFQDDNSKSDGKFYLKKINDDSKELVYTLSLLLAGKNLTPTNGQALNI
                                                                                                                                                                                                                                                                                                                                                           RRYT-TYGTYTINITVNLTDKGNIQIWLPQFKSNARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                         KOFLFKNANCPSKLALNSSHFQCNREQASGATLSLYIPAGELNKLPFGGVWNAVLKLNVK
                                                                                                                                                                                                                                                                                                                                                                                                                                       KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SHHLYDRMSFLCLSSQNTLNGACPSSDAPGTATIDGETNITLQFTEKRSLIKRELQIKGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SHTLYDRWTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barry, Eileen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ETEC Protein Homology Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/09839894
им.
м.
E Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1542; Di
Pred. No. 7.3e
32; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
7.3e-147;
nes 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         359;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
```

```
CURRENT APPLICATION NUMBER: US/09/839,894
CURRENT FILING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEQ ID NOS: 40
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 30
LENGTH: 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; OTHER INFORMATION: US-09-839-894-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/839,894
CURRENT FILING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEO ID NOS: 40
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 31
LENGTH: 362
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
FEATURE:
                                                                                                                                                                                                                             APPLICANT: Altboum,
APPLICANT: Barry, E
APPLICANT: Levine,
APPLICANT: Universi
                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                 Sequence 30, Application UPatent No. US20020176868A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                        APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION OF
TITLE OF INVENTION: CSA OPERON
FILE REFERENCE: UOFMD.006A
                                                                                                                                                                                                                                                                                                                                                       09-839-894-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION OF TITLE OF INVENTION: CSA OPERON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: UOFMD.006A
ORGANISM: Artificial Sequence
                       TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                          352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                             351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115 AGNKKPIWENQSCDFSNIMYLNSKSWSCGAHGNANGTILNLYIPAGEINKLPFGGIWEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59 SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVS-GETNITLQFTEKRSLIKRELQI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 KILFIFTLEFSSVLFTFAVSADKIPGDE--SITNIF-GPR-DRNESSPKHNILNNHITAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 KKIFIFL----SIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQSPIYNIFTNHVAGY 57
                                                                                                                                                                                                                                                                                                                                                                                                                        YITETPSVENL 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                           NVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNI 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSNSLDMCFYDGYSTNSDSMYIKFQDDNPTNSSEYNLYKIG-GTEKLPYAVS-LIGEKIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KGYKQLLFKSVNCPSG--LTLNSAHFNCNKNA-ASGASLYLYIPAGELKNLPFGGIWDAT 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LILRLS-RYGEVSSTHYGNYTVNITVDLTDXGNIQVWLPGFHSNPRVDLNLRPIGNYKYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YPVNGQSFTINDSSYLETNWARYTAVAMPEVNYPYLCWPARLLLNADVNAPDAGQYSGQI 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LKLRVKRRYSET----YGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYI 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLSHSLYDRIVELCTSSSNPVNGACPTI---GTSGVQYGTTTITLQFTEKRSLIKRNINI 114
                                                                                                                                                                                                                                                            Barry, Eileen M.
                                                                                                                                                                                                                                                                                                                                   Application US/09839894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ETEC Protein Homology Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 937; DB 10;
Pred. No. 7.5e-86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 362;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22;
                                               Db
            δÃ
                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                         Matches
```

```
; OTHER INFORMATION: ETEC Protein Homology Sequence
US-09-839-894-32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
US-09-839-894-32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: ETEC Protein Homology Sequence US-09-839-894-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 176
                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
SEQ ID NO 32
LENGTH: 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 32, Application UPatent No. US20020176868A1
                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/839,894
CURRENT FILLING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION TITLE OF INVENTION: CSA OPERON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Altboum,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: UOFMD.006A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                      TYPE: PRT ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
nes 176; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176 KLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSV 235
  121
                                         127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  296 TSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFT 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236 DMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNG 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119 GYKRFLYESDRCIHYVDKMNLNSHTVKCVGSFTRGVDFTLYIPQGEIDGLLTGGIWKATL 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                  72
                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 NKDHSLFDRWTFLCMSSTDASKGACPTGENSKSS--QGETNIKLIFTEKKSLARKTLNLK 118
                                                                                                                                                               89; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRN--ESSPKHNILNNHITAY
                         SVNCPSGLTLNSAHFNC----NKNAAS---GASLYLYIPAGELKNLPFGGIWDATLKL-R 178
                                                                               NVLGGWVCRSNRNENEGCEETHLVWWYAFGAYSIRLRFREQISHAEITL
                                                                                                                      NTLNG-ACPTSENPSSSS-----VSGETNITLQFTEKRSLIKRELQIKGYKQLLFK 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Barry, Eileen M.
Levine, Myron M.
University of Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PSSSSL 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KAFTINDTSSLFINWNRIKSVSLPQISIPVLCWPANLTFMSELNNPEAGEYSGILNVTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GYKQLLFKSVNC---PSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATL 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTFSIGPIDRSAAASYPAHYIFHEBVAGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ELRVKRHYDYNHGTYKVNITVDLTDKGNIQVWTPKFHSDPRIDLNLRPEGNGKYSGSNVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMCLYDGYSTHSQSIEMRFQDDSQTGNNEYNLIKTGEPLKKLPYKLSLLLGGREFYPNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
---ILLGSVRDACTGVINMNAAACQWGRSLKLRIPSEELAKIPTSGTWKATLVLDY 173
                                                                                                                                                                                                                                                                                                                                                                                             for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zeev
                                                                                                                                                                                   13.1%;
28.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09839894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63;
                                                                                                                                                                 42;
                                                                                                                                                               Score 247.5; DB 10
Pred. No. 2.4e-16;
2; Mismatches 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 916.5; DB 1
Pred. No. 8.8e-84;
3; Mismatches 120
                                                                                                                                                                                                      DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF THE
                                                                                                                                                                 Indels
                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 364;
                                                                                                                                                                                                        353;
                                                                                                                                                               51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7;
                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
```

```
밁
                                   Ş
                                                                          밁
                                                                                                            Ş
                                                                                                                                                   В
                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                    Š
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                      Д
                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: PRT
; ORGANISM: Drosophila melanogaster
US-09-303-232-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Nucleic Acids which encode
TITLE OF INVENTION: Insect acetylcholine receptor subunits
FILE REFERENCE: Le A 33 020-Foreign Countries
CURRENT APPLICATION UNDEER: US/09/303,232A
CURRENT FILING DATE: 1999-04-30
EARLIER APPLICATION NUMBER: DE 198 19 829.9
EARLIER FILING DATE: 1998-05-04
NUMBER OF SEQ ID NOS: 6
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Bayer Aktiengesellschaft
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/09303232A
Patent No. US20020006657A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-303-232-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENGTH: 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                     304
                                                                            497
                                                                                                               277
                                                                                                                                                     445
                                                                                                                                                                                                                             396
                                                                                                                                                                                                                                                                   173
                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                         249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              345
                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                                                          113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        290
                                                                                                                                                                                                                                                                                                                                                                                                              55 --ITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIK 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                   ASLE-TNWNRITAVTMPEIS--VPV-----LCW------PGR 331
                                                                                                                                                   ---FDDQRCEMKFGSWTYDGF----QLDLQLQDETGGDISSYVLNGEWELLGVPGKRNE
                                                                                                                                                                          GTYIGRNSVDMCF----YDGYSTNSSSLEIRFQDNNPKS-----DGKFYLRKINDDTKE
                                                                                                                                                                                                                            PDVLM----YNSADEGFDGTYQTNVVVR--NNGSC-LYVPPGIFKSTCKIDITWFP---
                                                                                                                                                                                                                                                                                                        TNVWLK - - - - -
                                                                                                                                                                                                                                                                                                                                        RELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD 172
                                                                                                                                                                                                                                                                                                                                                                             VCLAGYHEKRLLHD-----LLDPYNTLERPVLNESDPLQLSFGLTLMQIIDVDEKNQLLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIAFISYLGSFAAQLKNSSSSSSSSN----SSNNSSTQILNGLNKHSWIFLLIYLNLSAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNH-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TMLMGTQT 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VKRRYSETYGTYTINITIKLTD--KGNIQIWLPQF-KSDARVDLNLRPTGGGTYIGRNSV
ILLSLTVFLNMVAETMPATSDAVPLWIRIVFLCWLPWILRMSRPGR 602
                                                                        IYYNCCPEPYIDITFAIIIRRRTLYYFFNLIIPCVLIASMALLGFTLPPDSGEKLSLGVT
                                                                                                                                                                                                                                                               ATLKLRVKRRYSET - - - - YGTYTINITIKLTDKGNIQIWLPQ - - FKSDARVDLNLRPTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VEFSLDNVDKAATR-----PVVLPGQRQAVRCVPVPLTLTTQPFNIREKRSGEYQGTLTV 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAK---VENPEAGQYMGNINV 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DMCLYDG-GVKARSLQM--MEGSNKSGTGFQVIK-SDSADTIDYAVSMNYGGRSIPVTRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TFTPSSQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LQWGGDDPLGTSTTDITLNVTDHFAENAAIYFPQFGTATPRVDLNLHRMNASQMSGRANL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.3%; Score 119.5; DB 20.4%; Pred. No. 0.0064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48;
                                                                                                                                                                                                                                                                                                    ----LEWNDMNLRWNTSDYGGVK------DLR-IPPHRIWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 9;
                                                                                                            ----LSLLLAGKSLTPTNGTSLNIADA 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  770;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                               226
                                                                                                                                                                                                                                                                                                                                                                               359
                                                                      556
                                                                                                                                                                                                                          444
                                                                                                                                                                                      276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    233
```

RESULT 8

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                US-10-193-764-41
                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-092-880-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-092-880-10
                                                                                                                                                                                                                                                                                    Sequence 41, Application US/101 Publication No. US20030133943A1 GENERAL INFORMATION:
SEQ ID NO 41
LENGTH: 1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION: APPLICANT: Barenkamp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 10, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 10
                                                                            TITLE OF INVENTION: PROTECTIVE RECOMBINANT HAEMOPHILUS INFLUENZAE HIGH TITLE OF INVENTION: MOLECULAR WEIGHT PROTEINS FILE REFERENCE: 1038-1239MIS
CURRENT APPLICATION NUMBER: US/10/193,764
CURRENT FILING DATE: 2002-07-12
PRIOR APPLICATION NUMBER: 09/167,568
PRIOR FILING DATE: 1998-10-07
                                        NUMBER OF SEQ ID NOS: 91 SOFTWARE: PatentIn Ver. 2.1
                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                 APPLICANT: Loosmore, Sheena M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: PCT/US97/04707 PRIOR FILING DATE: 1997-04-01 NUMBER OF SEQ ID NOS: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/092,880 CURRENT FILING DATE: 2002-03-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Barenkamp, Stephen J.
TITLE OF INVENTION: HIGH MOLECULAR WEIGHT SURFACE PROTEINS OF NON-TYPEABLE
TITLE OF INVENTION: HAEMOPHILUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 09/155,614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 1996-04-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 08/617,697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR FILING DATE: 1998-09-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48 HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                K---VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SDSSEAENANLTIQ-----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGGNADAK 1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KGDLNI--KNIKADAEIQIGGNISQKEGNLTISSDKVNI-----TNQITIKAGVEGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KGNIQIWLPQFKSDARVDL---NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TFTNNGTANINIKGVVKLGDINNK--GG-----LNITTNASGTQKTIINGNIT---NE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSIAEDSTFKGEASDNLNITG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QF-----TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTL-----NSAHFNCN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YNEYSKH--AINSSHNL-----TILGGNVTLGG-----ENSSSSITGNINITNKANVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -DNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---KNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGT-YTINITIKLTD
                                                                                                                                                                                                                         Yang, Yan-Ping
Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/10092880 No. US20020164354A1
                                                                                                                                                                                                                                                                                                                           Application US/10193764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6.2%;
21.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 116.5; D
Pred. No. 0.04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19
```

646

```
δ
                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                     S
                                                         밁
                                                                                                                                밁
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-193-764-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Haemophilus
US-10-193-764-41
                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT ORGANISM: Haemophilus influenzae US-10-193-764-39
                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 39, Application US/10193764 Publication No. US20030133943A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 9:
SOFTWARE: PatentIn Ver.
SEQ ID NO 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/193,764
CURRENT FILING DATE: 2002-07-12
PRIOR APPLICATION NUMBER: 09/167,568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: PROTECTIVE RECOMBINANT HAEMOPHILUS INFLUENZAE HIGH TITLE OF INVENTION: MOLECULAR WEIGHT PROTEINS FILE REFERENCE: 1038-1239MIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: LOOSMORE, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       472 TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     641 TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV 675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  219 L--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKINDDTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174 TLKLRVKRRYSETYGTYTINITIKLTD------KGNI-----QIWLPQFKSDARVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  419 --RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF----QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119 GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           363
                                                                                                                                                                                                       369 EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 ESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRS-LIKRELQIK
                                                                                                                                                                                                                                            60 ESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRS-LIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA 173
                                                                                            TLKLRVKRRYSETYGTYTINITIKLTD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLDAKVENPEA-----GOYMGNINVTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                       TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                --RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF----QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ETAYTLSLLLAG - - - KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IGGNISQKEGNLTISSDKINI------TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91
                                                                                                                                                                                                                                                                                              5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65;
                                                                                                                                                                                                                                                                                  65;
                                                                                                                                                                                                                                                                                                Score 111.5; DE Pred. No. 0.063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 111.5; DE Pred. No. 0.062;
                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                            ----KGNI-----QIWLPQFKSDARVD
                                                                                                                                                                                                                                                                                                                   DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 12;
                                                                                                                                                                                                                                                                                  147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                147;
                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55;
                                                                                                                                                                                                                                                                                55;
                                                                                                                                                                                                                                                                              Gaps
                     275
                                                                                            218
                                                                                                                                477
                                                                                                                                                                                                       424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14;
                   밁
                                                 δÃ
                                                                                          밁
                                                                                                                          δÃ
                                                                                                                                                                   В
                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: E. Coli
US-09-912-020-302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: FastSEQ for Windows Version SEQ ID NO 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No. US20020045592A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -09-912-020-302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/912,020
CURRENT FILING DATE: 2001-07-23
PRIOR APPLICATION NUMBER: 09/492,709
PRIOR FILING DATE: 2000-01-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Zyskind, Judith APPLICANT: Ohlsen, Kari L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: 60/117,405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: ELITRA.001DV1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: GENES IDENTIFIED AS REQUIRED TITLE OF INVENTION: ESCHERICHIA COLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 2383
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                            1020
                   1080 GNGVDETTLTATVKDP-SNHPVAGITVNFT
                                                                                                                              288
                                                                                                                                                                     977
                                                                                                                                                                                                                                              927
                                                                                                                                                                                                                                                                                                                     874
                                                                                                                                                                                                                                                                                                                                                       113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          538
                                                                                                                                                                                                       232
                                                                                                                                                                                                                                                                                                                                                                                            819
                                                                                                                                                                                                                                                                            172 DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 762 SAKIATLSASNNGVLANENAANTVSVNVADEGS---NPINDHTVTFAVLSGSATSFNNQN 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          647 TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . Similarity 78; Conserv
                                                     WPG--RLOLDAKVENPEAGOYMGNINVTFT
                                                                                          KGMTDSNGVAIASLTGTLAGTHMIMARLANSNVSDAQPMTFVADKDRAVVVLQTSKAEII 1079
                                                                                                                              KSLTPTNGTSL----
                                                                                                                                                                                                     RNSVDMCFYDGYSTNSS----SLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                                                                          TATLT-----SLKNGDYRVTASVSSGSQANQQVNFIGDQSTAALTLSV-PSGDITV--
                                                                                                                                                                                                                                                                                                                   NEVVADGNDSVTMTATVRDAKGNLLNDVMVTFNVNSAEAKLSQTEVNSHD------GIA
                                                                                                                                                                                                                                                                                                                                                     RELQIKGYKQL-LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW 171
                                                                                                                                                                                                                                                                                                                                                                                        ----TAKTOVNGLA-TFÖLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                                              FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY---SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QLDAKVENPEA-----GQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EIAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IGGNISQKEGNLTISSDKINI-----TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yamamoto, Robert T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Froelich, Jamie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Trawick, John Forsyth, R. Allyn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09912020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1999-01-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.8%;
20.0%;
                                                                                                                                                                   TNTAPQYMTATLQDKNGNPLKDKEITFSVPND----VASKFSISNGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 109; DB 9; I
Pred. No. 0.42;
5; Mismatches 157;
                                                                                                                              ---NIADAASLETNWNRITAVTMPEISVPVLC
                                                       355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FOR PROLIFERATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
```

...---К 112

873

1019

231

976

90;

Gaps

```
RESULT 13
US-10-193-764-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 15
; LENGTH: 524
; TYPE: PRT
; ORGANISM: Saccharomyces cerevisiae
US-10-347-278-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
US-10-347-278-15
                                                                                                                                                                                                                                                                                                                                                                                 Sequence 35, Application US/10193764 Publication No. US20030133943A1 GENERAL INFORMATION:
                      SOFTWARE: PatentIn Ver.
SEQ ID NO 35
LENGTH: 915
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 15, Appropriation No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                PRIOR APPLICATION NUMBER: 09/167,568 PRIOR FILING DATE: 1998-10-07 NUMBER OF SEQ ID NOS: 91
                                                                                                                                                                                 FILE REFERENCE: 1038-1239MIS
CURRENT APPLICATION NUMBER: US/10/193,764
CURRENT FILING DATE: 2002-07-12
                                                                                                                                                                                                                                                    APPLICANT: Klein, Michel H.
TITLE OF INVENTION: PROTECTIVE RECOMBINANT HAEMOPHILUS INFLUENZAE
TITLE OF INVENTION: MOLECULAR WEIGHT PROTEINS
                                                                                                                                                                                                                                                                                                           APPLICANT: Loosmore, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: PCT/FR97/01540
PRIOR FILING DATE: 1997-08-29
PRIOR APPLICATION NUMBER: 60/024,910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/347,278
CURRENT FILING DATE: 2003-01-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 1996-08-30 NUMBER OF SEQ ID NOS: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: FONTAINE, THIERRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 05986-0007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: MOUYNA, ISABELLE
APPLICANT: LATGE, JEAN-PAUL
ITTLE OF INVENTION: METHOD FOR SORTING ANTIFUNGAL MOLECULES ACTING ON THE
ITTLE OF INVENTION: GLUCANOSYLTRANSFERASE ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
ORGANISM: Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                320 EISVPVLCWPGRLQLDAKVENPEAGQYMGNI-NVTFTPS 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119 GYKQL--LFKSVNCPSGLTLNSAHFNCNKNAA---SGASLYLYIPAGELKNLPFGGIWDA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           229 YIGRNSVDMC-----FYDGYSTNSSSLE-----IRFQDNNPKSDGK----- 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 264 GYDKLNSTFEDAVIP----LIFSEYGCNKNTPRTFDEVSEGLY---GGLKNVFSGGL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----FYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNR-ITAVTMP 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EISSDSIYKCDNSAITNIYSGFGTNNFTLPSQPAEIANMIEYGVNGTNT-GKILTDYAVP 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----VYEYTEEANNYGL---VKLDDSGSL----TYKDDFVNLESQLKNVSLPTTKES 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSD-ARVDLNLR----PTGGGT 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTFNYTIKNNKDDT--ISATISYDKA-NSLNELDVTATTVAKSASTSQSSSRSLTSSTSP 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/10347278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HARTLAND, ROBBERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US20030147856A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2003-01-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.7%; Score 108; DB 12; 24.7%; Pred. No. 0.051;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -SSSASSSSKSKGVGNIVNVSFSQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    313
```

```
g
                                                                                                                     Qy
                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VΩ
                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Haemophilus influenzae US-10-193-764-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-193-764-37
Sequence 37, Application US/10193764; Publication No. US20030133943A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-193-764-35
                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 37
LENGTH: 1222
TYPE: PRT
                                                                                                                                                                                                                                                                       Best
                                                                                                                                                                                                                                                                                             Query, Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/193,764 CURRENT FILING DATE: 2002-07-12 PRIOR APPLICATION NUMBER: 09/167,568 PRIOR FILING DATE: 1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1998-10-07
NUMBER OF SEQ ID NOS: 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: PROTECTIVE RECOMBINANT HAEMOPHILUS INFLUENZAE HIGH TITLE OF INVENTION: MOLECULAR WEIGHT PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: 1038-1239MIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Loosmore, Sheena M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                   5.4%; Score 101; DB 12;
Local Similarity 21.1%; Pred. No. 0.96;
Les 84; Conservative 48; Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438
679
                                     101
                                                                               619 NSNLTIGDNSDAGNTDAKKVTFSNVKDSKISASDHNVTLNSKVETSGDTDSTEDGGNNNT
                                                                                                                                                                 559 ISSDKVNITERITIKAGVNGDNSDSNEATSANLTIKTKELKLTNDLNISGFNKAEITAKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  534 -- INATTGDANITTQTGNINGKVESSSGSVTLIATGQTL 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           272 DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGR 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158 PAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARV 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101 TLQFTEKRSLIKRELQIKGYKQL---LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYI 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312 NSNLTIGDNSDAGNTDAKKVTFSNVKDSKISASDHNVTLNSKVETSGDTDSTEDGGNNNT 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  252 ISSDKVNITERITIKAGVNGDNSDSNEATSANLTIKTKELKLTNDLNISGFNKAEITAKD
                                                                                                                       60 ESH-TLYD-----
                                                                                                                                                                                                         21 VSADKIPGDESITNIFGPR----DRNESSPKH------NILN-----NHITAYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 VSADKIFGDESITNIFGPR----DRNESSPKH------NILN-----NHITAYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84;
GLTITAKNVTVNN--NITSHKTVNITASENVTTKAGTTIN--
                                   TLQFTEKRSLIKRELQIKGYKQL---LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYI 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LQLDAKVENPEAGQYMGNIN-----VTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GEVKSASGNVNITASGNTLNVSNITGQNVTVTAN-----SGAITTTEGST--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DLNLRPTGGGTYI-----GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIN 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KTGDIK----GGI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLTITAKNVTVNN--NITSHKTVNITASENVTTKAGTTIN-----ATTGSVEVTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ESH-TLYD-----RMTF-----LCLSSHN-TLNGACPTSENPSSSSYSGETNI 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----TASGDTLNVSNITGQN-VTVAAASGAVTTTKGSTINATTGNANITTK--TGEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.4%; Score 101; DB 12; 21.1%; Pred. No. 0.61;
                                                                                                                       -RMTF-----LCLSSHN-TLNGACPTSENPSSSSVSGETNI 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------ESNSGNVNI-----
                                                                                                                                                                                                                                                   129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129;
                                                                                                                                                                                                                                                                                           Length 1222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 915;
                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 138;
                                                                                                                                                                                                                                                      138;
-ATTGSVEVTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                               678
                                                                                                                                                                    618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              419
                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59
                                                                                                                                                                                                                                                      19
```

```
NUMBER OF SEQ ID NOS: 91
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 34
LENGTH: 1228
TYPE: PRT
ORGANISM: Haemophilus influenzae
US-10-193-764-34
    문
                                         õ
                                                                                         밁
                                                                                                                                     δ
                                                                                                                                                                                      밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
US-10-193-764-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 5.4%; Score 101; DB 12; Best Local Similarity 21.1%; Pred. No. 0.97; Matches 84; Conservative 48; Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 34, Application US/10193764 Publication No. US20030133943A1 RENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
APPLICANT: Klein, Michel H.
TITLE OF INVENTION: PROTECTIVE RECOMBINANT HAEMOPHILUS INFLUENZAE HIGH
TITLE OF INVENTION: MOLECULAR WEIGHT PROTEINS
FILE REFERENCE: 1038-1239MIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/10/193,764
CURRENT FILING DATE: 2002-07-12
PRIOR APPLICATION.NUMBER: 09/167,568
PRIOR FILING DATE: 1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Loosmore, Sheena M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              745
847 -- INATTGDANITTQTGNINGKVESSSGSVTLIATGQTL 883
                                           332 LQLDAKVENPEAGQYMGNIN-----VTFTPSSQTL 361
                                                                                                                                                                                 751 -----TASGDTLNVSNITGQN-VTVAAASGAVTTTKGSTINATTGNANITTK--TGEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           565 ISSDKVNITERITIKAGVNGDNSDSNEATSANLTIKTKELKLINDLNISGFNKAEITAKD 624
                                                                                                                                   272 DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGR 331
                                                                                                                                                                                                                               218 DLNLRPTGGGTYI-----GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIN
                                                                                                                                                                                                                                                                               733 KTGDIK----GGI-----
                                                                                                                                                                                                                                                                                                                           158 PAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARV 217
                                                                                                                                                                                                                                                                                                                                                                         685 GLTITAKNVTVNN--NITSHKTVNITASENVTTKAGTTIN--
                                                                                                                                                                                                                                                                                                                                                                                                    101 TLQFTEKRSLIKRELQIKGYKQL---LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYI 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   625 NSNLTIGDNSDAGNTDAKKYTFSNYKDSKISASDHNYTLNSKYETSGDTDSTEDGGNNNT 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 332 LQLDAKVENPEAGQYMGNIN-----VTFTPSSQTL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               796 GEVKSASGNVNITASGNTLNVSNITGONVTVTAN-----SGAITTTEGST--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             272 DDTKEIAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGR 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158 PAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARV 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841 -- INATTGDANITTQTGNINGKVESSSGSVTLIATGQTL 877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       218 DLNLRPTGGGTYI-----GRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKIN 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     727 KTGDIK----GGI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60 ESH-TLYD------RMTF------LCLSSHN-TLNGACPTSENPSSSSVSGETNI 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 VSADKIPGDESITNIFGPR----DRNESSPKH------NILN-----NHITAYS 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----TASGDTLNVSNITGQN-VTVAAASGAVTTTKGSTINATTGNANITTK--TGEIN
                                                                                                                                                                                                                                                                               ----ESNSGNVNI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---- ESNSGNVNI ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1228;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 138;
                                                                                                                                                                                                                                                                                                                                                                         -----ATTGSVEVTA 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              795
                                                                                                                                                                                                                                                                               750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19;
```

Search completed: August 19, 2003, 09:57:33 Job time: 58 secs

This Page Blank (uspto)

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                   Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nimum DB seq
aximum DB seq
                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  111.5\\111.5
                                                          1886
927.5
275.5
119.5
117.5
117.5
                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A_Geneseq_19Jun03:*
1: /SIDS1/gcgdata/ger
2: /SIDS1/gcgdata/ger
3: /SIDS1/gcgdata/ger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-839-894-10
1886
1 MNKILFIFTLFESSVLETFA.....EAGQYMGNINVTETPSSQTL
    100.0
49.2
14.6
6.3
6.2
5.9
5.9
                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1107863 seqs, 158726573 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                     Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           August 19, 2003, 09:36:34; Search time 44 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \(\sins1/\gcgdata/\geneseq/\geneseqp-\emb1/\text{AA1980.DAT:*}\)
\(\sins1/\gcgdata/\geneseq/\geneseqp-\emb1/\text{AA1981.DAT:*}\)
\(\sins1/\gcgdata/\geneseq/\geneseqp-\emb1/\text{AA1983.DAT:*}\)
\(\sins1/\gcgdata/\geneseq/\geneseqp-\emb1/\text{AA1983.DAT:*}\)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1986.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1988.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                   SIDS1,
                                                                                                                                                                                                                                                                                                                                                                             /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2002
/SIDS1/gcgdata/geneseq/geneseqp-embl/AA2003
                                                                                                                                                                                                Length
  1386
1449
650
1005
1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
                                                                                                                                                                                                   BB
    23
22
21
24
24
21
21
21
                                                                                                                                                                                                   Ħ
AAM50343
AAY22326
AAB45919
AAY50814
ABB82573
ABB82570
AAB47575
AAB01833
AAB61833
                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (without alignments)
1302.279 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1107863
              PILE CS4 pilus Csa
Pilin protein CotD
S. enterica serova
D. melanogaster ac
H. influenzae BASB
H. influenzae BASB
Alpha-agglutinin o
                                                                                                                                                                                              Description
```

					,	i i
	ALIGNMENTS					
Haemophilus influe	AAB23860	21	2411		94.5	Ġ
S	AAR99393	17	2353		94.5	4
Drosophila melanog	ABB68244	22	665	٠	94.5	w
acid sec	AAY37170	20	567	•	94.5	2
ase, MEK	ABG31849	23	2334	٠	95	Þ
ilus	AAM50341	23	867	5.0	95	5
g	AAB25547	21	825		95.5	39
is	AAG39275	21	683		96	8
S	AAG39276	21	631		96	7
Arabidopsis thalia	AAG39277	21	513		96	ര്
	AAG37667	21	430		96	Ğ
	AAB01838	21	963		97	4
s infl	AAB01839	21	957	•	97	ω
	AAG30906	21	454		97	ະ
	AAG30907	21	418		97	<u>~</u>
	AAB01842	21	998		99	
aemophilus	AAB01843	21	992		99	9
ci prote	ABU66267	24	839	•	99	8
	ABB98211	23	• B39	•	99	7
Chlamydia psittaci	ABP56002	23	839	•	99	6
Haemophilus influe	AAB01826	21	975		99.5	õ
Haemophilus influe	AAB01827	21	969	٠	99.5	4
	AAB01840	21	1010	٠	100.5	ພ
Haemophilus influe	AAB01841	21	1004	٠	100.5	2
Non-typeable Haemo	AAW30291	18	1598		101	21
High molecular wei	AAR41731	14	1338		101	õ
Lactococcus lactis	ABB54801	23	1440		104.5	6
Listeria monocytog	ABB47313	23	598		105	8
Haemophilus influe	AAB01828	21	1228		106	7
. influenzae	AAB01830	21	1222		106	6
c	AAR85290	17	671		106	5
Haemophilus influe	AAB01834	21	1101	٠	107	4
Haemophilus influe	83	21	1095	٠	107	ω
	594	21	2383		109	ົວ
Non-typeable Haemo	2	18	1601	5.9	110.5	_
High molecular wei	AAR41732	14	1529		10	0

AAM50343 Altboum Z, 01-NOV-2001. Key Peptide CS4 pilus; enterotoxigenic; ETEC; csa operon; CsaA; fimbrial; vaccine; diarrhoea; antibacterial; antidiarrheic. 20-APR-2000; 2000US-198686P Escherichia ETEC CS4 pilus CsaE tip associated protein. 18-FEB-2002 (first entry) AAM50343; AAM50343 standard; Protein; 361 20-APR-2001; 2001WO-US12914 WO200181582-A2 Protein (UYMA-) UNIV MARYLAND BALTIMORE coli. Levine MM, Barry EM; /label= Signal_peptide 24.361 /label= Mature_protein Location/Qualifiers

```
RESULT 2
AAY22326
ID AAY2
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ភិព្គិន្តិន
                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present sequence is that of the tip associated protein CsaE of enterotoxigenic Escherichia coli (ETEC) strain El1881A. CsaE is encoded by the csaE gene (see AAI70763) of the E. coli El1881A Csa operon. This operon includes 5 contiguous genes, csaA-csaE, which encode the synthesis of ETEC-CS4 pili. It has been expressed in attenuated Shigella strain CVD1204 guaBA, constructing the Shigella expressing CS4 fimbriae vaccine strain CVD1204 (pGA2-CS4). The CsaE protein has a calculated mol.wt. of 40102.4 and a theoretical pl of 8.74. It shows homology to similar proteins from other ETEC fimbriae. Recombinant CsaA-CsaE polypeptides are used in claimed immunogenic compositions to generate an immune response in a subject. These prevent ETEC colonisation, and hence protect
            CS2 gene cluster; (enterotoxigenic E. enteric infection;
                                                                                                    22-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subject. These pragainst diarrhoea.
                                                                        Pilin
                                                                                                                                                                 AAY22326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nucleotide sequence, useful as immunogenic agent for generating immune response against recombinant product of the operon, comprises csa operon which encodes enterotoxigenic Escherichia coli-CS4 pili
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2002-049280/06
DB; AAI70763, AA
                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                    L 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MNKILFIETLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE
                                                                                                                                                                 standard;
                                                                                                                                                                                                                                        r
                                                                                                                                                                                                                                                                                                                                                                             DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                                       RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KQLLFKSVNCPSGLTLNSAHFNCNKNAASGÅSLYLYIPAGELKNLPFGGIWDATIKLRVK
                                                                                                                                                                                                                                                                                                                   ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                                                                                                                                                                                                                                                                                                            DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                                                                                                                                                                                                                                                                                                                                       RRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATLKLRVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAYSE
                                                                                                                                                                                                                                                                                                  ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQT
                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; ilarity 100.0%; Conservative
                                                                        Cotb
                            CotA; CotB; CotC; CotD;
. coli; human upper inte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAI70780
            therapy
                                                                                                                                                                 Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81pp; English.
                       CotB; CotC; CotD; pilin human upper intestine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1886; DB 23;
Pred. No. 4.2e-169;
; Mismatches 0;
                          protein; i
diarrhoeal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the Shigella
                          ımmunogen;
ıl disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CsaE is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
```

RESULT 3 AAB45919 ID AAB4

AAB45919

standard;

Protein;

359

355

295 238 235 178 118

```
ν
                                                                                                                                          δÃ
                                                                                                                                                                          밁
                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                         밁
                                                                                                                  В
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This sequence represents a CS2 pilin protein of the invention, encoded by (which also encodes CotA, CotC, and CotB). CS2 pilins are long proteinaceous molecules thought to mediate attachment of enterotoxigenic E. coli (ETEC) to and/or promote colonisation of the human upper intestine. The CS2 gene cluster may be used to produce immunogens for vaccinating patients against diarrhoeal diseases caused by ETEC bacteria. This type of enteric infection is a major cause of death among infants in developing countries and in immunocompromised (e.g. Acquired Immune Deficiency Syndrome (AIDS)) or elderly adults. The vaccine comprises more than 1 antigenic determinant (epitopes) from more than 1 pilus type to be effective against more than 1 type of ETEC infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 3; Column 45-48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1999-443623/37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (UYEM-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                 11\dot{9}
                                                                                                                                                                          179
359
                           356
                                                        299
                                                                                     296
                                                                                                                  239
                                                                                                                                             236
                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                        59
                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                               ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for vaccinating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAX84848
                                                                                                                                                                         LKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTESIGPIDRSAAASYPAHYIFHEHVAGY
                                                                                                                                                                                                                                                                                                                                                                                 MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRN--ESSPKHNILNNHITAY
                         PSSOTL 361
                                                                         T9LNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFT
                                                                                                                                 DMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNG
                                                                                                                                                                                                                                    GYKRFLYESDRCIHYVDKMNLNSHTVKCVGSFTRGVDFTLYIPQGEIDGLLTGGIWEATL
                                                                                                                                                                                                                                                     GYKQLLFKSVNC---PSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWDATL
                                                                                                                                                                                                                                                                                           NKDHSLFDRMTFLCMSSTDASKGACPTGENSKSS--QGETNIKLIFTEKKSLARKTLNLK
                                                                                                                                                                                                                                                                                                                        SESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIK 118
                                                         EAFTINDTSSLFINWNRIKSVSLPQISIPVLCWPANLTFMSELNNPEAGEYSGILNVTFT
                                                                                                                   EMCLYDGYSTHSQS1EMRFQDDSQTGNNEYNL1KTGEPLKKLPYKLSLLLGGREFYPNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Froehlich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      364 AA;
                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95US-0483101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95US-0483101
                                                                                                                                                                                                                                                                                                                                                                                                                           49.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   encoding against d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        35pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 927.5; DB 20; Pred. No. 1e-78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g Escherichia coli CS2 pilin proteins diarrhoeal diseases caused by
                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                              118;
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                              7;
                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

```
Ş
                                                                                                                           δÃ
                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                          S
                                   밁
                                                                                                В
                                                                                                                                                               B
                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                    therapy. Such vaccines are useful for protection against diseases caused by S. enterica subspecies I or S. enterica subspecies I serovar Typhi. The saf and tcf proteins from S. enterica subspecies I bacteria are useful for active or passive immunization in mammals. The nucleotide sequences are useful for constructing vectors for use as vaccines for insertion into attenuated bacteria in constructing a recombinant viral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention describes the novel proteins (saf and tcf) (I) encoded by a DNA sequence of a gene encoding the procursor of the saf fimbriae unit of Salmonella enterica subspecies I or a DNA sequence of the gene encoding the tcf fimbriae unit of S. enterica subspecies I serovar Typhi The products of the invention on the used as vaccines or gene
                                                                                                                                                                                                                                                                                                                                                                                                      insertion into attenuated bacteria in constructing a recombinant viral vaccine, or for direct inoculation of a nucleic acid vaccine. The protein or antigenic fragments, nucleic acid sequences, and antibodies are useful in molecular diagnostic assays for the detection of S. enterica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 72-73; 77pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fimbriae proteins of Salmonella enterica subspecies I bacteria, for producing vaccines against the bacterial subspecies and for detecting the bacteria -
                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                          subspecies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Folkesson A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Salmonella typhi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fimbrial protein; saf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S. enterica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-MAY-2000; 2000WO-SE01079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200073336-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcf insert;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB45919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ACTI-) ACTIVE BIOTECH AB
                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                132
   301
                                                                                                  184
                                                                                                                                184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-061512/07
)B; AAC82926.
                                                                                                                                                                                                                             79
                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                             90;
                                                                                                                                                                                                                                                                                                             Similarity
ADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAK---VENPEAGQYMGNINVTFTPS
                              DG-GVKARSLQMKIEGSNKSGTGFQVIKSDSADT--IDYAVSMNYGGRSIPVTRGVEFSL
                                                              DGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAGKSLTPTNGTSLNI
                                                                                                DDPLGTSTTDITLNVTDHFAENAAIYFPQFGTATPRVDLNLHRMNASQMSGRANLDMCLY
                                                                                                                              SETYGTYTINITIKLTD--KGNIQIWLPQF-KSDARVDLNLRPTGGGTYIGRNSVDMCFY
                                                                                                                                                             DACYTGV-----INMNAAACQWGRSLKLRIPSEELAKIPTSGTWKATLVLDYLQWGG
                                                                                                                                                                                 --CPSGLTLNSAHFNCNKNAAS---GASLYLYIPAGELKNLPFGGIWDATLKL-RVKRRY
                                                                                                                                                                                                                             WVCRSNRNENEGACEETHLVWWYAFGAYSKIRLRFREQISHAEITL-----ILLGSVR
                                                                                                                                                                                                                                                            FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVN
                                                                                                                                                                                                                                                                                                                                                                                          H
                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                serovar Typhi tcfD fimbrial subunit protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  detection
                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Normark S,
                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99SE-0001961
                                                                                                                                                                                                                                                                                                           14.6%;
29.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcf;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Loefdahl
                                                                                                                                                                                                                                                                                            48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vaccine; gene therapy; immunization;
                                                                                                                                                                                                                                                                                          Score 275.5; D
Pred. No. 3e-17
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                          DB 22;
                                                                                                                                                                                                                                                                                            130;
                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                            359;
                                                                                                                                                                                                                                                                                            35;
                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    usetul
 ω
5
                                                              300
                                                                                              243
                                                                                                                             240
                                                                                                                                                             183
                                                                                                                                                                                                                             131
                                                                                                                                                                                                                                                            129
                                300
                                                                                                                                                                                           183
```

```
δÃ
                          Db
                                                  Ş
                                                                               Вþ
                                                                                                        Q
                                                                                                                                   В
                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                          Matches
                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                  This invention describes a novel nucleic acid (NA) encoding a nicotinic acetyl-choline receptor (I) from insects which can be used as an insecticide. Inhibitors of (I) interfere with neurotransmission. (I) (also vectors containing it, its regulatory regions, and antibodies directed against (I)-encoded proteins) are used to screen for: (a) plant protection agents that alter conductance of AChR, potentially useful as insecticides, or (b) genes which encode polypeptides that are involved in formation of functionally related AChR in insects. (I) are also used to isolate and characterize the specified regulatory regions and for recombinant production of (II). This sequence represents an
                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nucleic acid encoding insects, used to identify
                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                     recombinant production of (II). This sequence represents an acetyl-choline receptor isolated from Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Adamczewski M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (FARB ) BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DE19819829-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       neurotransmission;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acetyl-choline
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D. melanogaster acetyl-choline receptor protein from clone Da7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAY50814;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY50814 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000-014207/02
 173
                            360
                                                    113
                                                                                  305
                                                                                                                                     249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                           55
                                                                                                                                                                                          83;
                                                                                                                                                             9 TLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAZ24475
                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                     1a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQT
 ATLKLRVKRRYSET----YGTYTINITIKLTDKGNIQIWLPQ--FKSDARVDLNLRPTGG
                                                    RELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIWD
                                                                                                                                     TIAFISYLGSFAAQLKNSSSSSSSSN----SSNNSSTQILNGLNKHSWIFLLIYLNLSAK
                                                                               VCLAGYHEKRLLHD-----LLDPYNTLERPVLNESDPLQLSFGLTLMQIIDVDEKNQLLV
                                                                                                        --ITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLIK 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNVDKAATR-----PVVLPGQRQAVRCVPVPLTLTTQPFNIREKRSGEYQGTLTVTMLMG 355
                                                                                                                                                                                                                                             770 AA;
                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                    Page 12-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98DE-1019829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    receptor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98DE-1019829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oellers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Protein;
                                                                                                                                                                                                    6.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                  26pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nicotinic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protection
                                                                                                                                                                                                                                                                                                                                                                                                                                                             potential insecticides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a nicotinic acetylcholine receptor
                                                                                                                                                                                         48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Schulte
                                                                                                                                                                                        Score 119.5; DB Pred. No. 0.048; Mismatches 14
                          -LEWNDMNLRWNTSDYGGVK-----DLR-IPPHRIWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agent;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insect;
                                                                                                                                                                                                                                                                                                                                                                                           acid (NA) encoding a nicotinic which can be used as an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         conductance;
                                                                                                                                                                                         140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insecticide;
                                                                                                                                                                                                                 21;
                                                                                                                                                                                         Indels
                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AChR.
                                                                                                                                                                                        135;
                                                                                                                                                                                                                  770
                                                                                                                                                                                        Gaps
                                                    172
                                                                                359
                                                                                                                                   304
                          395
                                                                                                                                                               54
                                                                                                                                                                                         20
```

Ş

```
D X X P X P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
 Best Local Similarity
               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82573
                                                                         The invention relates to novel polypeptides BASB223 and BASB24, isolated from non-typeable H. influenzae (NTH). The polypeptides are related to H. influenzae high molecular weight protein A (HmwA). Compositions comprising the BASB223 and BASB224 polypeptides and polynucleotides are useful for preparing a medicament for generating an immune response in an animal. The BASB223 and BASB224 polypeptides and polynucleotides may be used as research reagents and materials for discovery of treatments and diagnosis for diseases, particularly human diseases, and as immunogens for producing antibodies immunospecific the such polypeptides and polynucleotides. The polynucleotides may be used in the discovery and development of antibacterial compounds, in genetic immunization, in the development of prophylactic or therapeutic agents for bacterial infection, particularly non-typeable H. influenzae. The present sequence represents the BASB223 or BASB224 polypeptide partial sequence.
                                                                                                                                                                                                                                                                                                                            Claim 3; Page 71; 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                        New BASBB223 and BASBB224 polypeptides and polynucleotides, useful for preparing a medicament for generating an immune response in an animal, or as research reagents and materials for discovering treatments for
                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2003-040650/03
N-PSDB; ABV74997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H. influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABB82573 standard;
                                               Sequence
                                                                                                                                                                                                                                                                                                                                                              human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-MAR-2001;
13-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200279237-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antibacterial; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASB223;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        04-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABB82573;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLAX ) GLAXOSMITHKLINE BIOLOGICALS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227
                                                                                                                                                                                                                                                                                                                                                              diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASB224; high molecular weight protein A; immunostimulant; erial; vaccine; medicament; bacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILLSLTVFLNMVAETMPATSDAVPLWIRIVFLCWLPWILRMSRPGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASLE-TNWNRITAVTMPEIS--VPV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PDVLM----YNSADEGFDGTYQTNVVVR--NNGSC-LYVPPGIFKSTCKIDITWFP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IAYT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---FDDQRCEMKFGSWTYDGF-----QLDLQLQDETGGDISSYVLNGEWELLGVPGKRNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTYIGRNSVDMCF----YDGYSTNSSSLEIRFQDNNPKS-----DGKFYLRKINDDTKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IYYNCCPEPYIDITFAIIIRRTLYYFFNLIIPCVLIASMALLGFTLPPDSGEKLSLGVT
                                               1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001GB-0006155
2001GB-0006156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2002WO-EP03210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASB223 or BASB224 polypeptide sequence
                                               ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <del>..</del>
6.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1386
Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------LSLLLAGKSLTPTNGTSLNIADA 303
117.5;
No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -LCW-
; DB
.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----PGR 331
             24;
           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444
```

CCCCCXXXIIII

The invention relates to novel polypeptides BASB223 and BASB224, isol from non-typeable H. influenzae (NTH1). The polypeptides are related H. influenzae high molecular weight protein A (HmwA). Compositions comprising the BASBB223 and BASBB224 polypeptides and polynucleotides

Compositions polynucleotides

isolated

to

```
RESULT 6
ABB82570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                 New BASBB223 and BASBB224 polypeptides and polynucleotides, useful for preparing a medicament for generating an immune response in an animal, or as research reagents and materials for discovering treatments for human diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASB223; BASB224; high molecular weight protein antibacterial; vaccine; medicament; bacterium.
Claim 3;
                                                                                                                                  WPI; 2003-040650/03.
N-PSDB; ABV74994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  H. influenzae BASB223 polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABB82570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABB82570 standard;
                                                                                                                                                                                                                                                                                                                                                                                                   WO200279237-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                       Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-FEB-2003
                                                                                                                                                                                                                                                                   13-MAR-2001;
13-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                10-OCT-2002
                                                                                                                                                                                                                             (GLAX ) GLAXOSMITHKLINE BIOLOGICALS
                                                                                                                                                                                                                                                                                                                          12-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81;
Page 67-68; 109pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HNVTLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GRLQLDAKVENPEA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KTKELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGN 1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DTKETAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HKGALTIGGS-----ANIQGNLTANGDTVEVAGDVIVSDDAKFKAETKNNLNIT-GTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SSRINVINGSSLSITGDMPAKKIFDIKNDLVINA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPKHNILNN---HITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EIQIGGNISQKEGNLTISSDKINI-----TKRIEIKADTDQGNSDSGVASNANLTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IN----ITIK------LTDKGNIQIW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NKNAAS-GASLYLYIPAGELKNLPFGGIW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EYGLYADGNITVEGGNVTLGSNKAKTHITKNVSVKS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NNGTSEINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANA
                                                                                                                                                                                                                                                                                                                                                                                                                                       influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                   2001GB-0006155
2001GB-0006156
                                                                                                                                                                                                                                                                                                                            2002WO-EP03210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein; 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NITLOFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                               SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -DATLKLRVKRRYSETYGTYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----LPQFKSDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----NANLTLSSANFNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              immunostimulant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -TNSNVSITEVEGTDTKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
```

IJ

δÃ g 80

밁

QV

g

δÃ DЬ 20 밁 Š 밁

밁

```
88888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
     08-JUL-1992;
14-DEC-1992;
                                                                                                                                                                                                                              Immobilisation; enzyme; cell wall; alpha agglutinin; AGA 1; FIO Major cell wall protein; glycosyl-phosphatidyl-inositol; anchoring protein; alpha factor; alpha-agglutinin; invertase; inulinase; alpha-amylase; Saccharomyces cerevisiae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        useful for preparing a medicament for generating an immune response in animal. The BASBB223 and BASBB224 polypeptides and polynucleotides may used as research reagents and materials for discovery of treatments and diagnosis for diseases, particularly human diseases, and as immunogens for producing antibodies immunospecific the such polypeptides and polynucleotides. The polynucleotides may be used in the discovery and
                                                            07-JUL-1993;
                                                                                                  20-JAN-1994.
                                                                                                                                                                         Saccharomyces
                                                                                                                                                                                                              enzymatic
                                                                                                                                                                                                                                                                                                                                                                 25-MAR-2003
19-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                        AAR47575;
                                                                                                                                     WO9401567-A1
                                                                                                                                                                                                                                                                                                                            Alpha-agglutinin of Saccharomyces cerevisiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR47575 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  development of antibacterial compounds, in genetic immunization, in the development of prophylactic or therapeutic agents for bacterial infection, particularly non-typeable H. influenzae. The present sequence represents the BASB223 polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HNVTLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GRLOLDAKVENPEA-----GOYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KTKELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EIQIGGNISQKEGNLTISSDKINI-----TKRIEIKADTDQGNSDSGVASNANLTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NNGTSEINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HKGALTIGGS-----ANIQGNLTANGDTVEVAGDVIVSDDAKFKAETKNNLNIT-GTFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NKNAAS-GASLYLYIPAGELKNLPFGGIW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EYGLYADGNITVEGGNVTLGSNKAKTHITKNVSVKS-----NANLTLSSANFNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSRINVTNGSSLSITGDMPAKKIFDIKNDLVINA-----TNSNVSITEVEGTDTKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPKHNILNN---HITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGET---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DTKEIAYTLSLLLAG - - - KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----NITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNC 143
                                                                                                                                                                                                              process; fermentation; biodegradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                               (updated)
(first entry)
                                                                                                                                                                           cerevisiae
     92EP-0202080
92EP-0203899
                                                            93WO-EP01763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 117.5; D
Pred. No. 0.19;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---- DATLKLRVKRRYSETYGTYT
                                                                                                                                                                                                              catalysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17
RESULT 8
                                                                                                                                                       밁
                                                                                                                                                                                      8
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fragment or protein is selected from alpha agglutinin, AGA 1, FLO major cell wall protein of lower eukaryotes or a proteinase of lactic acid bacteria. The recombinant polynucleotide preferably also comprises a sequence encoding a signal peptide to ensure secretion of the expressed product. The signal peptide is preferably derived from glycosyl-phosphatidyl-inositol, anchoring protein, alpha factor, alpha-agglutinin, invertase or inulinase, alpha-amylase of Bacillus or proteinases of lactic acid bacteria. The host microorganism can be used for performing enzymatic processes on an industrial scale.

(Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              microbial cell wall. The coding sequence is used in the procof a recombinant polynucleotide which comprises a structural encoding a protein with catalytic activity and at least part
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene encoding at least the C-terminus of a protein capable of anchoring in a eukaryotic or prokaryotic cell wall. The anchoring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The alpha-agglutinin is used in a method to immobilise enzymes to microbial cell wall. The coding sequence is used in the production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1994-035071/04.
N-PSDB; AAQ54012.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ONIL )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Immobilisation of enzymes to microbial cell wall -
fusion protein of enzyme linked to anchoring protei
                                                                                                                                                       336
                                                                                                                  305
                                                                                                                                                                                          266
                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                                                        226
                                                                                                                                                                                                                                                                                                                                            198
                                                                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                                                                                                                                            128
                                                                              396 IYSTDSNITVGTDIHTTSEVISDVETISRETASTVVAAPTSTTGWTGAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UNILEVER
UNILEVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۲.
                                                                                                                                                                                                                                WVNALQSLPANVNTIDHALEFQYTCLDTIANTTYATQFSTTREFIVYQGRNLGTASAKSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACPTSENPSSSSVSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNC-PSGLTLNSA 139
                                                                                                                                                                                          YLRKINDDTKEI - - - AYTLS - -
                                                                                                                                                                                                                                                                                                      --DCSSVQVYSSNDFNDWWFPQSYNDTNADV-----TCFGSNLWITLDEKLYDGEML
                                                                                                                                                                                                                                                                                                                                            LTDKGNIQI - - -
                                                                                                                                                                                                                                                                                                                                                                                                                    HFNCNKNAASGASLYL -- YIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIK 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSITFSLNFSDGGSSYEYEL-----ENAKFFKSGPMLVKLGNQMSDVVNFDPAAFTENVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SMPHVYRIKLLNSSQTATISLADGTEAFKCYVSQQAAYLYENTTFTCTAQNDLSSYNTID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSP---KHNILNNHITA------YSESHTLYDRMTFLC----LSSHNTLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ILWLFSLALASAININDITFSNLEITPLTANKQPDQGWTATFDFSIADASSIREGDEFTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ILFIFTLFFSSVL----FTFA-----VSADKIPG------DESITNIFGPRDRNE---
                                                                                                                                                     FISTTTTDLTSINTSAYSTGSISTVETGNRTTSEVISHVVTTSTKLSPTATTSLTIAQTS
                                                                                                                                                                                                                                                                                                                                                                                 HSGRSTGYGSFESYHLGMYCPNGYF----LGG----TEKI-----DYDSSNNNVDL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 650 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Toschka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52;
                                                                                                                                                                                                                                                                                                                                            -WLPQFKSDARVDLNLRPTGGGTYIGRN---SVDMCFYDG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 114; DB 15;
Pred. No. 0.12;
2; Mismatches 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H,
                                                                                                              RITAVIMPEISVPVLCWPGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Verrips
                                                                                                                                                                                                                                                                   YSTNSSSLE - - IRFQDNN - - PKSDGKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                                                                                                                                                                                          LLLAGKSLTPTNGTSLNIADAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in the production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  prodn.
                                                                              444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of.
```

Gaps

182

127 80 67

335

242

225

Š 밁 Ş 밁 Q 밁 δÃ 밁

밁

Š

В õ

OT4

Protein; 1005 AA

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and the hawd and hawd genes encode accessory proteins which are responsible for post-translational processing and secretion of the HMWA proteins. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the CC mature HMWA. The invention also discloses hmwA genes (AAA52175-A52198) CC and HMWA proteins (AAB01824-B01844) from the non-typeable H. influenzae CC strains Joyc, KI, KZI, LCDC2, PMHI, 15 and 12. The nucleic acids and CC vectors are used for the production of recombinant H. influenzae HMW CC proteins which can be used as vaccines to mediate a humoral or CC ell-mediated immune response to provide protection against diseases in CC humans caused by H. influenzae (e.g., othiis media, epiglottitis, CC pneumonia and tracheobronchitis). The HMW proteins are also useful as CC antigens in immunoassays for detecting antibodies against Haemophilus, CC HMW proteins can be used to isolate and clone hmw genes from other common terminal strains of Haemophilus via hybridisation reactions. The
                                                       Best Loc
Matches
                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to the recombinant production of Haemophilus influenzae high molecular weight (HMW) proteins in Escherichia coli. The expression construct used to effect recombinant expression comprises a promoter functional in E. coli (e.g., the T7 promoter) operably linked to a modified hmwABC operon from a non-typeable (non-encapsulated) H. influenzae (NTH1). Most HMW-expressing NTH1 strains contain two home gen clusters termed hmw1ABC and hmw2ABC. Each hmwABC operon comprises hmwA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic acid molecule for producing recombinant high molecular proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans -
                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Haemophilus influenzae strain -K21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haemophilus influenzae strain
                                                                                                                                                            present sequence represents a mature HMWA protein from a non-typeable strain of H. influenzae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hmwB and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CONN-) CONNAUGHT LAB LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   detection; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              non-typeable Haemophilus influenzae; NTH1; non-encapsulated; recombinant production; Escherichia coli; antibacterial; vaccine; human disease; otilis media; epiglottitis; pneumonia; tracheobronchitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAB01833 standard;
                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000-303789/26.
DB; AAA52182.
                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SM,
hmwC genes. The hmwA genes encode the structural HMWA proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fig 21A-O; 307pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein;
                                                                                                                            1005
                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0167568.
98US-0206942.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99WO-CA00938
                                                                                                                            Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ķ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hmw gene;
                                                                     5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Klein
                                                                     Score 111.5;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      K21 mature HMW2A protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hmwA1;
                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hmwA2;
                                                                       .41;
                                                                                        DΒ
                                                   147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      high molecular
                                                                                      21;
                                                   Indels
                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ
                                                                                      1005;
                                                   55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     weight;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NO:41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         weight
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mw gene
```

```
RESULT 9
AAB01832
Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ω
         The invention relates to the recombinant production of Haemophilus influenzae high molecular weight (HMW) proteins in Escherichia coli. The expression construct used to effect recombinant expression comprises a promoter functional in E. coli (e.g., the T7 promoter) operably linked to a modified hmwABC operon from a non-typeable (non-encapsulated) H. influenzae (NTHi). Most HMW-expressing NTHi strains contain two hmw gene clusters termed hmwIABC and hmwAABC. Each hmwABC operon comprises hmwA, hmwB and hmwC genes. The hmwA genes encode the structural HMWA proteins and the hmwB and hmwC genes encode accessory proteins which are
                                                                                                                                                               Claim 12;
                                                                                                                                                                                           protection against Haemophilus induced
                                                                                                                                                                                                                                                      N-PSDB;
                                                                                                                                                                                                                                                                                                                                                         07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB01832 standard;
                                                                                                                                                                                                      Nucleic acid molecule for producing recombinant high molecular proteins of Haemophilus which are used as a vaccine to provide
                                                                                                                                                                                                                                                                                                                                                                                                     07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haemophilus influenzae strain K21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        detection; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB01832;
                                                                                                                                                                                                                                                                                                                                                                                                                                  13-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HMW protein;
                                                                                                                                                                                                                                                                                                                            (CONN-) CONNAUGHT LAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    numan disease; otitis media; epiglottitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ecombinant production;
                                                                                                                                                                                                                                                                    2000-303789/26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363
                                                                                                                                                                                                                                                                                                  SM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLDAKVENPEA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EIAYTLSLLLAG----KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           L--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKINDDTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TLKLRVKRRYSETYGTYTINITIKLTD------KGNI-----QIWLPQFKSDARVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF-----QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ELTLTDNLNISGFNKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IGGNISQKEGNLTISSDKINI------TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                              Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             influenzae
                                                                                                                                                                                                                                                                                              Yang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hmw gene; hmwA1; hmwA2;
Haemophilus influenzae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                              21A-O; 307pp; English.
                                                                                                                                                                                                                                                                                                                                                         98US-0167568
98US-0206942
                                                                                                                                                                                                                                                                                                                                                                                                     99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                  Klein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain K21 HMW2A protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia coli; antibacterial; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1011
                                                                                                                                                                                                                                                                                                  MH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  high molecular weight;
NTHi; non-encapsulated
                                                                                                                                                                                             diseases in humans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pneumonia; tracheobronchitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  non-encapsulated;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NO:39
                                                                                                                                                                                                                         weight
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     471
```

for

d hmwC genes encode accessory proteins which post-translational processing and secretion

the HMWA

gene

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                   AR41732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                proteins. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the mature HMWA. The invention also discloses hmwA genes (AAA52175-A52198) and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae strains Joyc, K1, K21, LCDC2, PMH1, 15 and 12. The nucleic acids and vectors are used for the production of recombinant H. influenzae HMW proteins which can be used as vaccines to mediate a humoral or cell-mediated immune response to provide protection against diseases in humans caused by H. influenzae (e.g., otitis media, epiglottitis, pneumonia and tracheobronchitis). The HMW proteins are also useful as antigens in immunoassays for detecting antibodies against Haemophilus, HMW proteins and/or HMW peptides. The nucleotide sequences encoding the HMW proteins and he used to teal the and close here against the condition that the analysis of the them that across from other than the most close from the care than the sequences encoding the
                                                                                                                                                                                                                      HMW; high molecular weight protein;
epitope; immunity; haemophilus influ
(BARE/) BARENKAMP S J.
                                    16-MAR-1992;
                                                                       16-MAR-1993;
                                                                                                              30-SEP-1993.
                                                                                                                                                 WO9319090-A1
                                                                                                                                                                                 Haemophilus influenzae
                                                                                                                                                                                                                                                                            High molecular weight protein 4 (HMW4).
                                                                                                                                                                                                                                                                                                                   25-MAR-2003
26-APR-1994
                                                                                                                                                                                                                                                                                                                                                                         AAR41732;
                                                                                                                                                                                                                                                                                                                                                                                                              AAR41732 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HMW proteins can be used to isolate and clone hmw genes from other non-typeable strains of Haemophilus via hypridisation reactions. I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    present sequence represents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    influenzae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             369 EKNAIFSTHNLTILGGNVTLGGENSSSNIKGNININSKANVTLQAHAGTSHLDKKE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60 ESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRS-LIKRELQIK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLNSKVETSNSDGSTGNGSDDNNIGLTISAKDVTV 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QLDAKVENPEA-----GQYMGNINVTFTPSSQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ELTLTDNLNISGENKAEITAKDNSDLIIGKASSDNSNAKQITFDKVKDSKIS--AGNHNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EIAYTLSLLLAG---KSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRL 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IGGNISQKEGNLTISSDKINI------TKRIEIKADTDQGNSDSGVASNANLTIKTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           L--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSD-GKFYLRKINDDTK 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TADINIKQGVVKLQGDITNNGNLNITTNASVNQKTIINGNITNKKGDLNIKDIKANAEIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TLKLRVKRRYSETYGTYTINITIKLTD------KGNI-----QIWLPQFKSDARVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --RTLTLGNVSVGGNLNIIGSNAHIDGNLSIAESAKF-----QGKTNNNLNITGTFTNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GYKQLLFKSVNCPSGLTL--NSAHFNCNKNAASGASLYLYIPAGEL-KNLPFGGIW--DA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1011 AA;
                                                                                                                                                                                                                                                                                                                 (updated)
(first entry)
                                    92GB-0005704
                                                                         93WO-US02166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      an
                                                                                                                                                                                                                                                                                                                                                                                                                1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 111.5; D
Pred. No. 0.41;
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HMWA
                                                                                                                                                                                                                          ein; virus;
influenzae.
                                                                                                                                                                                                                                                                                                                                                                                                                A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                          vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    non-typeable strain
                                                                                                                                                                                                                                           influenza;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
```

```
RESULT 11
AAW30292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The isolation and purification of the high molecular weight protein enables the identification of the major protective epitopes of the protein by conventional epitope mapping. These epitopes can then be synthesised using standard techniques and incorporated into fully
            WO9736914-A1
                                                     Misc-difference
                                                                                                                                                                                                                      14-APR-1998
                                                                                                                                                                                                                                                 AAW30292;
                                                                                                                                                                                                                                                                         AAW30292 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 6; Figure 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     High molecular weight surface proteins - of non-typeable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAQ49511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1993-320683/40.
                                                                               Misc-difference
                                                                                                                       Haemophilus
                                                                                                                                                              Non-typeable Haemophilus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (INRM ) INSERM INST NAT
                                                                                                                                                                                         Non-typeable Haemophilus high mol.wt. surface protein HMW4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            synthetic or recombinant vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      haemophilus which exhibit immunogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                1002 NADAKK----VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST 1046
                                                                                                                                                                                                                                                                                                                                                                                                     947
                                                                                                                                                                                                                                                                                                                                                                                                                                                           896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155
                                                                                                                                                                                                                                                                                                                                                                         307
                                                                                                                                                                                                                                                                                                                                                                                                                                254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         744 YNEYSKH--AINSSHNL-----TILGGNVTLGG-----ENSSSSITGNINITNKANVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     48
                                                                                                                                                  immunogen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                          NITNEKGDLNI -- KNIKADAEIQIGGNISQKEGNLTISSDKVNI -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LYIPAGELKNLPFGGIW--DATLKLRVKRRYSETYGTYT----INITIKLT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSI--AEDSTFKGEAS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QF-----TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLY 154
                                                                                                                                                                                                                                                                                                                                                                        ETNWNRITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT 353
                                                                                                                                                                                                                                                                                                                                                                                                   VEGGRSDSSEAENANLTIQ-----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGG 1001
                                                                                                                                                                                                                                                                                                                                                                                                                             FQ----DNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG----KSLTPTNGTSLNIADAASL 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----DNLNITGTFTNNGTANINIKQGVVKLQGDIINKGGLNITTNASGTQKTIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---- DKGNIQIWLPQFKSDARVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIR 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1529 AA;
                                                                                                                       influenzae strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                    (first entry)
                                                     400
                                                                                           Location/Qualifiers
                                      /note= "encoded by AAT"
                                                                                                                                                 vaccine;
                                                                note= "encoded by TCT"
                                                                                                                                                                                                                                                                           Protein; 1601 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SANTE
                                                                                                                                                 high molecular otitis media.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 110.5; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   & RECH MEDICALE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      properties
                                                                                                                                                               weight
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               127;
                                                                                                                                                               surface protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          -TNQITIKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               895
                                                                                                                                                                                                                                                                                                                                                                                                                                                         946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         790
```

```
RESULT 12
AAB15945
ID AAB15
XX
AC AAB15
XX
AC AAB15
XX
DT 05-0C
XX
DE E. CO
                                                                                                                                                                      Qy
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55555555555555555555888
                                                                                                                                                 ď
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This protein comprises the high molecular weight surface protein HMW4 (123 kDa) of non-typeable Haemophilus influenzae strain 5 that has the immunological ability to protect against disease caused by a non-typeable Haemophilus strain and is characterised by at least to one surface-exposed B-cell epitope that is recognised by monoclonal antibody AD6. The HMW4 amino acid sequence was deduced from an ic isolated hmw4 gene (see AAT90993). HMW1 (see AAW30293), HMW2 (see AAW30294) and HMW3 (see AAW30291) have also been identified. A ic conjugate comprising HMW4 linked to an antigen, hapten or polysaccharide, and a synthetic peptide of 6-150 amino acids corresponding to at least protective epitope of HMW4 are also corresponding to at least protective epitope of HMW4 are also colaimed. HMW proteins, conjugates and peptides can be used in coarseconds.
                                                                                AAB15945 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1; Page 97-102; 183pp; English.
                             05-OCT-2000
                                                       AAB15945;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        High molecular weight proteins of non-typeable influenzae - useful for vaccine production
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1997-503038/46
N-PSDB; AAT90993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barenkamp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BARE/) BARENKAMP S J.
 coli proliferation associated protein
                                                                                                                                                 1074
                                                                                                                                                                                                      1019
                                                                                                                                                                            307
                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                                                                                                863
                                                                                                                                                                                                                                                                                                                                                                                           103
                                                                                                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                               QADTSNSNTGLKKRTLTLGNISVEGNLSLTGANANIVGNLSI--AEDSTFKGEAS----
                                                                                                                                                                                                                                                                                                                                                                                                                 YNEYSKH--AINSSHNL-----TILGGNVTLGG-----ENSSSSITGNINITNKANVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                          HNILNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSS-----SVSGETNITL
                                                                                                                                                NADAKK----VTFDKVKDSKISTDGHNVTLNSEVKTSNGSSNAGNDNST
                                                                                                                                                                                                                              FQ----DNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG---KSLTPTNGTSLNIADAASL
                                                                                                                                                                                                                                                       NITNEKGDLNI -- KNIKADAEIQIGGNISQKEGNLTISSDKVNI -- -- -TNQITIKAG
                                                                                                                                                                                                                                                                                                                                   LYIPAGELKNLPFGGIW--DATLKLRVKRRYSETYGTYT----INITIKLT-----
                                                                                                                                                                                                                                                                                                                                                                                       QF-----TEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLY 154
                                                                                                                                                                        ETNWNRITAVTMPEISVPVLCWPG-RLQLDAKVENPEAGQYMGNINVT 353
                                                                                                                                                                                                   VEGGRSDSSEAENANLTIQ-----TKELKLAGDLNISGFNKAEITAKNGSDLTIGNASGG
                                                                                                                                                                                                                                                                                 ----DKGNIQIWLPQFKSDARVDL--NLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIR
                                                                                                                                                                                                                                                                                                            -----DNLNITGTFTNNGTANINIKQGVVKLQGDIINKGGLNITTNASGTQKTIING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĘŞ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1601 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96US-0617697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97WO-US04707
                                                                                Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62;
                                                                                2383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 110.5;
Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                Å
 sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haemophilus
  SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1601
  IJ
 NO:302.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                   1073
                                                                                                                                                                                                                                                        1018
                                                                                                                                                                                                                                                                                   253
                                                                                                                                                                                                                                                                                                          967
                                                                                                                                                                                                                                                                                                                                                               915
                                                                                                                                                                                                                                                                                                                                                                                                                  862
                                                                                                                                                                                                                                                                                                                                     199
Š
                           밁
                                                   Q
                                                                                                      Š
                                                                                                                                  밁
                                                                                                                                                          QΥ
                                                                                                                                                                                                            γ
                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-514822/46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zyskind J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200044906-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yamamoto RT,
                           1020
 328
                                                    288
                                                                                977
                                                                                                        232
                                                                                                                                  927
                                                                                                                                                            172
                                                                                                                                                                                       874
                                                                                                                                                                                                                113
                                                                                                                                                                                                                                          819
                                                                                                                                                                                                                                                                                              762
                                                                                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                                                                                                                                                                                              Similarity
WPG--RLQLDAKVENPEAGQYMGNINVTFT
                          KGMTDSNGVAIASLTGTLAGTHMIMARLANSNVSDAQPMTFVADKDRAVVVLQTSKAEII 1079
                                                                                                                                  TATLT --
                                                                                                                                                          DATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVDLNLRPTGGGTYIG
                                                                                                                                                                                                               RELQIKGYKQL-LFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAGELKNLPFGGIW 171
                                                                                                                                                                                                                                                                   FLCLSSHNTLNGACPTSENPSSSSVSGETNITLQFTEKRSLI----
                                                                                                                                                                                                                                                                                              SAKIATLSASNNGVLANENAANTVSVNVADEGS----NPINDHTVTFAVLSGSATSFNNQN
                                                                                                      RNSVDMCFYDGYSTNSS----SLEIRFQDNNPKSDGKFYLRKINDDTKEIAYTLSLLLAG
                                                                                                                                                                                       NEVVADGNDSVTMTATVRDAKGNLLNDVMVTFNVNSAEAKLSQTEVNSHD-----GIA
                                                                                                                                                                                                                                          ----TAKTDVNGLA-TFDLKSSKQEDNTVEVTLENGVKQTLIVSFVGDSSTAQVDLQKSK
                                                                                                                                                                                                                                                                                                                                                                                                    2383 AA;
```

SLKNGDYRVTASVSSGSQANQQVNFIGDQSTAALTLSV-PSGDITV--

976 231 926 ----K

112 818

873

TNTAPQYMTATLQDKNGNPLKDKEITFSVPND----

-VASKFSISNGG

1019

287

---NIADAASLETNWNRITAVTMPEISVPVLC

```
nucleotide and protein sequences associated with E. coli proliferation. AAA66056 and AAA66057 represent primers used for sequencing E. coli proliferation inhibiting nucleotide inserts in an example from the present invention. Methods from the present invention can be used to identify a proliferation required gene in a microorganism, by contacting a microorganism with a proliferation required gene activity inhibitory nucleic acid identified in another organism, and determining if inhibition occurs in the second microorganism. The nucleic acid sequences identified as being required for bacterial growth and proliferation, can be used for antisense therapy for killing bacteria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 11; Page 224-229; 316pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAA65809 to AAA65889 and AAA66058 to AAA66138 represent nucleotide sequences derived from Escherichia coli which inhibit E. coli proliferation. AAA65890 to AAA66055 and AAB15886 to AAB16040 represent nucleotide and protein sequences associated with E. coli proliferation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia coli; E. coli; proliferation; inhibition; antimicrobial; bacterial growth; antisense therapy; ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  proliferation, for use in antisense therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel polynucleotides and polypeptides associated with microorganism proliferation, used to identify inhibitors of bacterial growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27-JAN-2000; 2000WO-US02200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (ELIT-) ELITRA PHARM INC
SSVLFTFAVSADKIPGDESITNIFGPRDRNESSPKHNILNNHITAY---SESHTLYDRMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ohlsen KL,
[, Xu HH;
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0117405
                                                                                       5.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Trawick J,
                                                           65;
                                                                                 Score 109;
Pred. No. 2.
                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Forsyth
                                                                                       .5;
                                                           157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RA,
                                                                                                                   21;
                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to AAB16040 represent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Froelich
                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antibacterial.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              screening;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ϋ́
                                                           90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Carr
                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٠
ت
   69
```

Matches Query Match Best Local :

Similarity

5.7%;

Score 107; Pred. No. 1 Mismatches

BB

21;

Length 1095;

Gaps

Conservative

44;

```
RESULT 13
AABO1835
ID AABO1
XX AABO1
XX AABO1
XX I1-SE
XX I1-SE
XX MA-tur
KW NOn-tur
KW Non-tur
KW recom
KW human
KW detec
XX
Haemo
PT CCCCCXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                 07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                           non-typeable Haemophilus influenzae; recombinant production; Escherichia chuman disease; otitis media; epigloti
                                                                                                                                                                                                                                                                                                                                                                                                                                          Mature HMW protein;
non-typeable Haemoph
                                                                                                                                                                                                            The invention relates to the recombinant production of Haemophilus
                                                                                                                                                                                                                                                                                                                                                        07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                        13-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                       WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                     Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                      detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB01835;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB01835 standard;
                                                                                                                                                                                                                                                                                                    Loosmore SM,
                                                                                                                                                                                                                                                                                                                  (CONN-) CONNAUGHT LAB LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Haemophilus influenzae strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1080 GNGVDETTLTATVKDP-SNHPVAGITVNFT 1108
                                                                                                                                                                                                                                                                                   2000-303789/26
                                                                                                                                                                                                                             8; Fig
                                                                                                                                                                                                                                                                            AAA52184.
                                                                                                                                                                                                                                                                                                                                                                                                                      diagnosis.
                                                                                                                                                                                                                            22A-P; 307pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                  Yang Y,
                                                                                                                                                                                                                                                                                                                                 98US-0167568.
98US-0206942.
                                                                                                                                                                                                                                                                                                                                                        99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    hmw gene;
                                                                                                                                                                                                                                                                                                                                                                                                      strain
                                                                                                                                                                                                                                                                                                  Klein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ŗ
```

of f

hmwC genes. The hmwA genes encode the

structural HMWA proteins

gene

of Haemophilus

```
and the hmwB and hmwC genes encode accessory proteins which are responsible for post-translational processing and secretion of the HMWA proteins. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the mature HMWA. The invention also discloses hmwA genes (AAA52175-A52198) and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae strains JOYC, XI, XZI, LCDC2, PMHI, 15 and 12. The nucleic acids and vectors are used for the production of recombinant H. influenzae HMWA proteins which can be used as vaccines to mediate a humoral or
                                                                                                                  cell-mediated immune response to provide protection against diseases in humans caused by H. influenzae (e.g., otilis media, epiglottitis, pneumonia and tracheobronchitis). The HMW proteins are also useful as antigens in immunoassays for detecting antibodies against Haemophilus, HMW proteins and/or HMW peptides. The nucleotide sequences encoding the HMW proteins can be used to isolate and clone hmw genes from other non-typeable strains of Haemophilus via hybridisation reactions. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to a modified hmwABC operon from a non-typeable (non-encapsulated) H. influenzae (NTHI). Most HWW-expressing NTHI strains contain two hmw gene clusters termed hmwAABC and hmwZABC. Each hmwABC operon comprises hmwA, hmwB and hmwC genes. The hmwA genes encode the structural HMWA proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      influenzae high molecular weight (HMW) proteins in Escherichia coli. T
expression construct used to effect recombinant expression comprises a
promoter functional in E. coli (e.g., the T7 promoter) operably linked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nucleic acid molecule for producing recombinant high molecular weight proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans -
                                                                        sequence represents a mature HMWA protein from a of H. influenzae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      epiglottitis; pneumonia; tracheobronchitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hmwA1; hmwA2; high molecular weight.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LCDC2 mature HMW1A protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : NTHi; non-encapsulated; coli; antibacterial; vac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO:45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
AAB01834
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                  influenzae high molecular weight (HMW) proteins in Escherichia coli. The expression construct used to effect recombinant expression comprises a promoter functional in E. coli (e.g., the T7 promoter) operably linked to a modified huwABC operon from a non-typeable (non-encapsulated) H. influenzae (NTH1). Most HMW-expressing NTH1 strains contain two haw gen clusters termed hmwlABC and hmwZABC. Each hmwABC operon comprises hmwA.
                                                                                                                                                                                                                                                                    Nucleic acid molecule for producing recombinant high molecular weight proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      non-typeable Haemophilus influenzae; NTH1; non-encapsulated; recombinant production; Escherichia coli; antibacterial; vachuman disease; otitis media; epiglottitis; pneumonia; trache
                                                                                                                                                                      The invention relates
                                                                                                                                                                                                                       Claim
                                                                                                                                                                                                                                                                                                                                                                         N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Haemophilus influenzae strain LCDC2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HMW protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB01834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (CONN-) CONNAUGHT LAB
                                                                                                                                                                                                                                                                                                                                                                    2000-303789/26.
DB; AAA52183.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                       12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 45 SPKHNILNNHITAYSESHTLYD------RMTFLCLSSHNTLNGACPTSENPSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                               SM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IAKGGAHFKDIN-NTKSLNITTNSDSAYRTIIEG-NITNSNG-DLNITD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIRGNVTNKGNLTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGL----FDNQGKSNIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTI----NITIKLTDKGNIQIWLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GS----SLRF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIKPPIVSN---VHDGNHTLFNGNVSVLGGGDVNFHFNASSSNHWTHGVVIKSQNFNASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QFKSDARVDLNLRPTGGGTYIGRN----SVDMCFYDGYSTNSSSLEIRFQDNNPKSD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NLQKSLVANKNITFEG---GNITLAADKKPIEIKGNITVKEGANVTLRSANYGNDKSAL-
                                                                                                                                                                                                                  Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   influenzae strain LCDC2 HMW1A protein, SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GKFYLRKINDDTKEIAYTLS-----LLLAGKSLTPTNGTSLNIAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hmw gene; hmwA1; hmwA2; high molecular weight
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                  22A-P; 307pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Yang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      otitis media; epiglottitis; pneumonia; tracheobronchitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98US-0167568
98US-0206942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                      to the recombinant production
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Klein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---KSEGSTRTAF---TIESDLTLNATGGNISLNQVAGIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                               ΜH
```

antibacterial; vaccine;

NO:43

490

```
responsible for post-translational processing and secretion of the HMWA proteins. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the mature HMWA. The invention also discloses hmwA genes (AAA52175-A52198) and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae strains Joyc, KI, K2I, LCDC2, PMH1, I5 and 12. The nucleic acids and vectors are used for the production of recombinant H. influenzae HMW proteins which can be used as vaccines to mediate a humoral or cell-mediated immune response to provide protection against diseases in humans caused by H. influenzae (e.g., otitis media, epiglottitis, pneumonia and tracheobronchitis). The HMW proteins are also useful as antigens in immunoassays for detecting antibodies against Haemophilus, HMW proteins and/or HMW peptides. The nucleotide seguences encoding the non-typeable strains of Haemophilus via hybridisation reactions. The present sequence represents an HMWA protein from a non-typeable strain of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ULT 15
85290
Buist
                                                                                                                                                                                                                                                         W09531561-A1
                                                                                                                                                                                                                                                                                                         Streptococcus
                                                                                                                                                                                                                                                                                                                                                         Lysin; autolysis; culture; cheese; foodstuffs; inducti
                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptococcus faecalis autolysin.
                                               (UNIL ) QUEST INT BV.
                                                                                                  12-MAY-1994;
                                                                                                                                                 12-MAY-1995;
                                                                                                                                                                                                       23-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR85290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR85290 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and the hmwB and hmwC genes encode accessory proteins which are responsible for post-translational processing and secretion of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              344
િ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTI----NITIKLTDKGNIQIWLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QFKSDARVDLNLRPTGGGTYIGRN----SVDMCFYDGYSTNSSSLEIRFQDNNPKSD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GS-----SLRF------KSEGSTRTAF---TIESDLTLNATGGNISLNQVAGIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VSGETNITLQFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIKPPIVSN---VHDGNHTLFNGNVSVLGGGDVNFHFNASSSNHWTHGVVIKSQNFNASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPKHNILNNHITAYSESHTLYD------RWTFLCLSSHNTLNGACPTSENPSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IAKGGAHFKDIN-NTKSLNITTNSDSAYRTIIEG-NITNSNG-DLNITD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIRGNVTNKGNLTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGL----FDNQGKSNIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NLQKSLVANKNITFEG---GNITLAADKKPIEIKGNITVKEGANVTLRSANYGNDKSAL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---GKFYLRKINDDTKEIAYTLS-----LLLAGKSLTPTNGTSLNIAD 302
Kok
K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
Ū,
                                                                                                                                                                                                                                                                                                         faecalis
                                                                                                  94EP-0201353
                                                                                                                                                 95WO-NL00170
Ledeboer AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein; 671
                                                                                                                                                                                                                                                                                                                                                           induction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.7%; Score 107;
24.6%; Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44;
                                                                                                                                                                                                                                                                                                                                                                                lactic acid bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
Venema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                   fermentation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           153
```

455 206

303 491 258

551

146

94 17

423

Ş 밁 Š 밁 δÃ

밁 Qy 밁

Search completed: August 19, Job time : 46 secs

2003, 09:45:52

B

Ş

```
뮹
                                                                                                  Qγ
                                                                                                                                                                                                        В
                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                              δã
                                                                                                                                      밁
                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   In situ production of a homologous autolysin or a heterologous autolysin from a food grade Gram positive bacteria, can be used i a process for the lysis of a culture of lactic acid bacteria. The process can be used in the manufacture of products containing cultures of lactic acid bacteria e.g. cheese, where the culture i lysed following the completion of fermentation. The enhanced induction of the autolysin is performed some hours after the fermentation is finished. No extra lysin needs to be added and tlysin does not need to be isolated or encapsulated. The time of lysis can be precisely controlled. This is the Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lysis of a culture of lactic acid bacteria in, e.g. cheese production - by in situ prodn. of an auto:lysin, regulated by inducible promoter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1996-010946/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure; Page 66-69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        faecalis autolysin.
552 SNGGSNNNQ 560
                                                                   492 QSGTNTYYTIKSGDTLNKIAAQYGVSVANLRSWNGISGDLIFAGQKIIVKKGTSGNTGGS
                                                                                                    259
                                                                                                                                      456
                                                                                                                                                                                                          424
                                                                                                                                                                                                                                                                             367
                                  304 ASLETNWNR 312
                                                                                                                                                                       207
                                                                                                                                                                                                                                         147 AASGASLYLYIPAGELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQI
                                                                                                                                                                                                                                                                                                                                               309 RYATDPSYNAKLNNVITAY--NLTQYDTPSSGGNTGGGTVNPGTGGSNNQSGTNTYYTVK 366
                                                                                                                                                                                                                                                                                                              95
                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                  73;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                      W-----NGISGDLIFVGQKLIVKKGTSGNT---
                                                                                                                                                                                                                                                                                                            SGET -- NITLOF -- -- TEKRSL -- IKRELQIKGYKOLLFKSVNCPSGLTLNSAHFNCNKN
                                                                                                                                                                                                                                                                                                                                                                   RNESSPKHNI-LNNHITAYSESHTLYDRMTFLCLSSHNTLNGACPTSENPSSSSV-----
                                                                                                                                                                                                          -QSGTNTYYTVKSGDTLN----
                                                                                                                                                                                                                                                                           SGDTLNKIAAQYGVSVANLRSWNGISGDLIFVGQKLIVKKGA---SGNTGGSGNGGSNNN
                                                                                                    PKSDGKFYLRKINDDTKEIA--YTLS-----
                                                                                                                                                                       WLPQFKSDARVDLNL------RPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       671 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                5.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                  39;
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 106; DB Pred. No. 0.74;
                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                          --KIAAQYG-----VTV----ANLRS
                                                                                                                                                                                                                                                                                                                                                                                                                  103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   17;
                                                                                                LLLAGKSLTPTNGTSLNIADA
                                                                                                                                        ----GGSSNGGS----NNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 671;
                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                    94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     an
                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in
```

i.

ڙه ٻ

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 imum DB seq length: 0
imum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  August 25, 2003, 16:04:22 ; Search time 3990 Seconds (without alignments)
11134.801 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-839-894-9
1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2888711 segs, 20454813386 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 atgaataagattttatttat.....caagtagtcaaacactctag 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenEmbl: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_ba:*
gb_htg:*
gb_in:*
gb_om:*
gb_ov:*
em_htgo_hum:*
em_htgo_mus:*
em_htgo_other:*
                                                                                                                           em_htg_hum:*
em_htg_inv:*
em_htg_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_pat:*
gb_ph:*
gb_pl:*
                                                    em_htg_mus:*
em_htg_pln:*
em_htg_rod:*
em_htg_mam:*
em_htg_vrt:*
                                                                                                                                                                                                                          em_pat:*
em_ph:*
em_pl:*
                                                                                                                                                                                                                                                                   em_or:*
                                                                                                                                                                                                                                                                                                                           em_hum:*
em_in:*
                                                                                                                                                                                                                                                                                                                                                                                                         gb_sy:*
                                                                                                                                                                                                                                                                                                                                                                                                                           gb_ro:*
gb_sts:*
                                                                                                                                                                       em_vi:*
                                                                                                                                                                                    em_un:*
                                                                                                                                                                                                em_sts:*
                                                                                                                                                                                                               em_ro:*
                                                                                                                                                                                                                                                                                                 em_om:*
                                                                                                                                                                                                                                                                                                              em_mu:*
                                                                                                                                                                                                                                                                                                                                                      em_fun:
                                                                                                                                                                                                                                                                                                                                                                      em_ba:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5777422
```

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	G	a	ı	•	n	ດ		a		ი	a									O	a		ი	ი	a	O	O	O	o	o				c	,										Resul
45	44	4.5		3	41	0	39	38	37	36	Ü	1 4	. (s	3 6) (L	3	2 2	82	27	26	25	24	23	22	21	20	19	18	17	16	15	14	۵,۵	-ر د -ابد	Ţ	9	8	7	σ	տ	4	ω	ν,		No.
45.2		4					46	٥.		٥.		٠,	٠.		47.2	١.	· .`	7.	٠,		. 80	8	9.	9.		9.	9.	σ	0	٥.	0 :	٥.	٠.	٠, د	98	8	09.	10.	10.	52	80	80	1086	9	Ŗ
•	٠	٠	٠	•		٠	٠	٠	٠	4.3	٠		٠.4	•	4	٠	٠	4.4	٠	٠	4.4	٠			٠		٠.	٠		. :		4.7		٠	١.	7.	8	8	8	78	8	8	100.0	3 :	i at
514	5144	SLUS	, ,	7	7837	5375	1188	8	7656	25	1000	1000	2	5 8	12940	. 6	9614	79	35	98	950	14	15	27	\sim	27	92	200	5	5347	54		ນດ	4 6	79	79	95	33	ω	17	23	23	7239	י פ	ng
N	ω	L	, ,	J ا	S	ω	ω	ω	ω	w	N	N	K	ú	ω		N	N	ω	0	σ	σ	ω	o	6	σ	ω	σ	ω	N	w	ωc	.	o	٠ ٥	<u>_</u>	<u>ب</u>	σ	Ц	<u>.</u>	σ,	σ,	_ <	٧ إ	B
AC019512	1481	REG	5	ĭ	5	ö.	2	AC116305_1		AC116330	PFMAL6P1_05	FMAL13_10	FMALLS_0	C116957	001386	E01484	C00470	00468	31088	X34457	2379	8374	1484	645	649	7999	AE014822	65539	01484	AC006278	11697	AC115594	<u>ہ</u> د	XU83/4	141	OTAE	AY216491	X74141	င္က		•	X35235	AF296132	7 1	Ð
9512 Dr	4819 Plasmod	0 8869	TAJA/# Nattus	0074 00110	121051 Dani	116551 Dict	C115612 Dictyost	tion	538053 Monosig	6330 D1	inuation	inuation	tinuation	tinuation	1386	014847 Pla	004709 Pla	004688 Pla	310884 Dictyos	44570 Sequenc	23793 S	083744 Sequenc	14842 Plasmod	56452 Sequenc	46493 S	9996			٠,	AC006278 Plasmodiu	_		Caenorna	Sequence	Seque	coli cot	16491	741413 Sequence	6908 E.coli c	661 E	41418 Sequenc	352351 Segmence	AF296132 Recherich		cription

	TITLE	AUTHORS	REFERENCE			ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	LOCUS	AX352333	RESULT 1
and methods of using same	Isolation and characterization of the csa operon (etec-cs4 pili)	Altboum, Z., Levine, M.M. and Barry, E.M.	1	Enterobacteriaceae; Escherichia.	Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;	Escherichia coli	Escherichia coli		AX352333.1 GI:18617616	AX352333	Sequence 9 from Patent WO0181582.	AX352333 1086 bp DNA linear PAT 06-FEB-2002		

ALIGNMENTS

```
BASE CO
                 Ş
                                               밁
                                                                          Q
                                                                                                            밁
                                                                                                                                     Ş
                                                                                                                                                                      밁
                                                                                                                                                                                              Š
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                       541
                   661
                                               601
                                                                             601
                                                                                                            541
                                                                                                                                                                        481
                                                                                                                                                                                                     481
                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent: WO University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
 TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                            AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                       AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT 600
                                                                                                                                                                                     GAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA 540
                                                                                                                                                                                                                                                 AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                     ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                              GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                            AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGAACGAATCTTCCCCCCAAACATAATATTAAATTAACCATATTACAGCATACAGTGAA 180
                                                                                                          AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                 TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATTTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                        ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTATCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGAACGAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /GOGO, Start=1
/COGO, Start=1
/transl_table=11
/transl_table=11
/protein_id="CAD2854.1"
/protein_id="CAD2854.1"
/db_xref="gi:18617617"
/db_xref="gi:18617617"
/db_xref="gi:18617617"
/db_xref="gi:18617617"
/translation="MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNES
SPKHNILNHITAXSESHTLYDRNTFLCLSSHNTLNSAHENCNKHAASGASLLXIFPAG
EPKRSLIKRELJKTGVILEKSVNCPSGLTLNSAHENCNKHAASGASLLXIFPAG
ELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLFOFKSDARVD
IMLRFTGGGTYIGRNSVDMCFYDGYSTMSSSLEIRFQDNNPKSDGKFTLRKINDTKE
IAYTLSLLLAGKSLTPTMGTSLMIADAASLETNWNRITAVTMPEISVPVLCWPGRLQL
DAKVENPEAGQYMGNINTTFTPSSQTL"
DAKVENPEAGQYMGNINTTFTPSSQTL"
DAKVENPEAGQYMGNINTTFTPSSQTL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO 0181582-A 9 01-NOV-2001; ty of Maryland, Baltimore (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Escherichia
/mol_type="genomic DNA"
/db_xref="taxon:562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1086; DB 6;
Pred. No. 4.3e-223;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                      540
                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
AF296132
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
PUBMED
                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli
Escherichia coli
Bacteria; Proteobacteria; Gammaproteobacteria;
Enterobacteriaceae; Escherichia.
                                                                                                                                                                  Submitted (14-AUG-2000) Center for Maryland, School of Medicine, Baltimore, MD 21201, USA
                                                                                                                                                                                                                                                                       2 (bases 1 to 7239)
Altboum, Z.D., Levine, M.M., Galen, J.E. and Barry, E.M.
Isolation and characterization of ETEC CS4 fimbriae and their expression in Shigella flexneri 2a guaba s
                                                                                                                                                                                                                                                                                                                                                                Altboum, Z., Levine, M.M., Galen, J.E. and Barry, E.M. Genetic Characterization and Immunogenicity of Coli 4 from Enterotoxigenic Escherichia coli when It Is Shigella Live-Vector Strain Infect. Immun. 71 (3), 1352-1360 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia coli csa
sequence IS1.
AF296132
                                                                                                                                                                                                                              3 (bases 1 to 7239)
Altboum, Z.D., Levine
                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF296132.1 GI:15419711
                                                                                                                                                                                                                                                                                                                                        2595452
                                                                                                                                                                                                                                                                                                                                                          2483692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCTAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAGGCTGGACAATATATGGGTAATATTAATGTTTACTTTCACACCCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 7239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1086
 /gene="csa operon"
/note="encodes ETEC CS4
                                                            /serotype="025:H42"
/db_xref="taxon:562"
                                                                                          /mol_type="genomic
/strain="Ell881A"
                                                                                                                                                     Location/Qualifiers
                                          /note="enterotoxigenic"
                                                                                                                       /organism="Escherichia
                              .6849
                                                                                                                                                                                                                              Levine, M.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  operon,
                                                                                                                                                                                Center for Vaccine Development, Medicine, 685 W. Baltimore Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7239
                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complete
                                                                                                                                                                                                                              Barry, E.M.
 fimbrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence,
 proteins;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                   Street
                                                                                                                                                                                                                                                                            strain
                                                                                                                                                                                                                                                                                                                                                                                                Expressed in a
CFA/IV"
                                                                                                                                                                                                                                                                                         encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCT 27-FEB-2003
                                                                                                                                                                                                 University
                                                                                                                                                                                                                                                                            g,
                                                                                                                                                                                                                                                                            genes
D 1204
```

1020

960 960 900 900

840

gene

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1589. .4192
/gene="csaC"
1589. .4192
/gene="csaC"
                          /product="minor pilin protein Csae"
/protein_id="AAK97137, 1"
/db_xref="GI:15419715", 1"
/db_xref="GI:15419715", 1"
/ta_nslation="MMI9715", 1"
SPKHNILNNHITAYSESHTLYTRMTFL/LSSHNTLNGACPTSENPSSSSYSGETNITL
OFTEKRSLIKRELQIKGYKQLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VTVMLTNFSRVEAFRNNQLLGVWYLDSGVNELDTARLÞYGSYDLKLKIFENTÖLVREE
I IPFNKGRSSIGDMOMDVFIOGGNII NÜKDRY I EKONNHKSSYNAGLRLÞTTRNISYO
OGASVIDNKNYY EGSLKWNSGIISGSLNSEFSLMGDNAKGNYQSISYDDGFSLSFYH
NDKRVDNGRRYNAGMSGCYESYSASLSIFLLGWTSTLGYSDTYSESYYKNHILLSEYG
FYNQNIYKGRTQRWQLTSSTSLKWMDYNFMÞAIGIYNSEQRQLTDKGGYISVTLTRAS
RENSLARGYSYSNSLFYDGYMTSTNNGDYHEVRAFFNKNRHNAEGRLSGR
INNFGDLNGSFSMNKNRNTNSSNHSLTVDGYMTSTNNGDYHEVRAFFNKNRHNAEGRLSGR
INNFGDLNGSFSMNKNRNTNSSNHSLTGGYNSSFALTSDGFYWGGSASGLIKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIÞVFALTÐASLIIEDNYGDKNISVL
APTNNDMFILDGNYPVEIEFKVSVSYIGRGFDKNGTPLSGAHVLNEBHYÍLDEDGGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="CS4 major fimbriae subunit CsaB"
/protein_id="AAK97135.1"
/db_xref="GI:15419713"
/translation="MKIKTIGAMALITMEVAMSASAVEKNITVTASVDETIDILQAD
GSSLEFAVELTYSPAASREENYKIATKVHTNVLNKNVLVKLVNDEKLTNVLDSTKQLE
ITVSYGGKTLSTADVIFEPAELNEGTSGVTGVSSSQDLVIGATTAQAPTAGNYSGVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1028. .1531
/gene="csaB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YGOTLĞIHRIKTTPHHIKTYSBESILDKINVKKEKEKKLSYLETINSFSRIGNISCOGN
ATIQYNCHYIKTKSVDYIVDDVDNVVNLFIGNEFLDSEAHNDEYHQLSRIVKAFIQS
QTINVSDSGKYKSLSYSGNSALGITOTSYAVLIMMINYNKFNGYSNNEFIINSLYFH
DLDKRYYYQFGRADRTDLSQSISGNFNFNLLFLPLPDIDGIRTGTTQSYIKNTDKFIASP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="putative outer membrane protein involved transport of the major fimbriae subunits across membrane; colonization factor antigen c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MHKLFCLLSLLITPFVANANFMIYPISKDLKNGNSELIRVYSKS
KEIQYIKIYTKKIINPGTTEEHEVDMPNWDGGFVVTPQKVILPAGGSKSIRLTQFRIP
KKEEIYRVYFEAVKPDSKENVIDNKKLTTELSVNIIYAALIRSLPSEQNISLNISRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="periplasmic ./protein_id="AAK97134.:/db_xref="GI:15419712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    major pilin protein"
ELKNLPFGGIWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVD
                                                                                                                                                                                                                                                                                      /note-"probably attachment of the control of the co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SFEYTGNEKTLFLLKGRTIYTCQLGKNKVHKGIVFVGDVICDVNSTSSLPDEFVKNPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="usher protein CsaC"
/protein_id="AAK97136.1"
/db_xref="GI:15419714"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IKLNHEDIEKEQGLIQLKVP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RKNIIIYNNGNVRAGVKDIYFCKSSNIDDSCVKKTHNKNIYPEKSFDTLVNNNFSYVF
                                                                                                                                                                                                                         transl_table=11/
                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                     /gene="csaE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation-"MTKKNTLYITIIAMLTPYSVFSGDIPNSFRDLWGEQDEFYEVKI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note-"colonization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="colonization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "csaA"
                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                  found at the fimbriae time bacteri; colonization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           chaperone-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                      tip and i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     stabilize
                                                                                                                                                                                                                                                                                                                involved
                                                                                                                                                                                                                                                                                         antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                      e in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                          Ş
                                                                                       밁
                                                                                                                                            Ş
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밇
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 1086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match
                                                                                          4736
                                                                                                                                                                                                                      4676
                                                                                                                                                                                                                                                                                                                                                     4616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4196
                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                              601
                                                                                                                                                      541
                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATTACAATTTACGGAAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                          AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                          AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                        AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                   GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                  TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2436
```

4615 420

480

4795

600

660

4735

540

4675

360 4495 4435

240

300

```
Similarity
GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                  ATGAATAAGATTTTATTTATTTTACATTGTTTTTCTCTCAGTACTTTTTACATTTGCT
                                                                                                                                                               ATGAATAAGATTTTATTTTTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCT
                                                                    GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                   Ø
                                                                                                                                                                                                                                                                                  LNIKHYQ"
                                                                                                                                                                                                                                                                                                               /product="insB"
/protein_id="AAK97138.1"
/protein_id="AAK97138.1"
/db_xref="GI:419716"
/tans1stion="MeonsphyGrwpQhDfTSLKKLRPQSVTSRIQPGSDVIVCAEMD
EQWGYVGAKSRORWLFYAYDRLEKTVVAHVFGEETMATLGRLMSLLSPFDVVINWTDG
WPLYESRLKGKLHVISKRYTQRIERHNLNLRQHLARLGRKSLSFSKSVELHDKVIGHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6143. .6427
/gene="islA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6096.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKE IAYTLSLLLAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQLDAKVENPEAGQYMGNINVTFTPSSQTL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6346. .6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="truncated; CsaD"
6096, .6870
                                                                                                                                                                                                                                                                                                                                                                                                                                               6346. .6849
/gene="islB"
                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /insertion_seq="IS1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="csab"
                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                truncated; InsA"
                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (5790. .6119)
                                                                                                                                                                                                                                                                                  1345
                                                                                                                                                                                                   0
                                                                                                                                                                                                                Score 1086; DB 1; Pred. No. 3.3e-223;
                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                   2277
                                                                                                                                                                                                   0
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                7239;
                                                                                                                                                                                               0;
                                                                                                                                                                                               Gaps
                                                                                                                                  4255
 4375
                                180
                                                                 4315
                                                                                                 120
                                                                                                                                                                60
                                                                                                                                                                                               0
```

```
RESULT 3
AX352351
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               рь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                       ERENCE
UTHORS
TITLE
                                                                                                                                                                                                                                                                  JOURNAL
                                                 CDS
                                                                                                                                                                                  Sd
                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                 AX352351
Sequence 27
AX352351
AX352351.1
                                                                                                                                                                                                                                               Isolation and control same and methods of using same patent: WO 0181587-A 27 01-NOV-2001;
                                                                                                                                                                                                                                                                                                                                                Escherichia coli
Escherichia coli
                                                                                                                                                                                                                                         University of Maryland, Balt
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                        Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                   Altboum,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGACGCAGCTTCTCTGGAAACAAACTGGAAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCTAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCAGTGTTCCGGTGTTGTGTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGATGGGAAATTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                       /transl_table=11
/protein_id="Cad22859.1"
/protein_id="Cad22859.1"
/protein_id="Cad22859.1"
/db_xref="Gi:18617635"
/translation="MHKLFCLLSLLITPFVANANFMIYPISKDLKNGNSELIRVYSKS
/KEIQYLKIYTKKIINPGTTEEHEVDMPDMDGGFVVTPQKVILPAGGSKSIRLTQFRIP
KKEEIYRVFEAVKPDSKENVIDNKKLTTELSVNIIYAALIRSLPSEQNISLNISRNA
RKNIIIYNNGMVRAGVEDIYFCKSSNIDDSCVKKTHNKNIYPEKSFDTLVNNNFSYVF
IKLNHEDIEKEQGLIQLKVP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5281
                                                                                                                                                                                                                                                                                                                                                                                                           27
/transl_table=11
/protein_id="CAD22860.1"
                                                                                                                                                                                                     /organism="Escherichia
/mol_type="genomic DNA"
                                                                                                                                                                                                                                1. .7239
                                  /note="unnamed protein
                                                                                                                                                                 /note="unnamed protein product"
                                                                                                                                                                                           /db_xref="taxon:562"
                      codon_start=1
                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                      Levine, M.M. and Barry, E.M. nd characterization of the
                                                                                                                                                                                                                                                                                                                                                            coli
                                                                                                                                                                                                                                                                                                                                                                                    GI:18617634
                                                                                                                                                                                .999
                                                                                                                                                                                                                                                                                                                                                                                                         Patent
                                                                                                                                                                                                                                                                                                                                                                                                         7239 bp
: WO0181582.
                                  product"
                                                                                                                                                                                                                  coli"
                                                                                                                                                                                                                                                    (US)
                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                       csa
                                                                                                                                                                                                                                                                                      operon
                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                     Enterobacteriales;
                                                                                                                                                                                                                                                                                      (etec-cs4 pili)
                                                                                                                                                                                                                                                                                                                                                                                                                     PAT
                                                                                                                                                                                                                                                                                                                                                                                                                     06-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                      Ϋ́
         Š
                                                       Ş
                                                                                В
                                                                                                                               밁
                                                                                                                                                    Ş
                                                                                                                                                                              닭
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                           밁
                                  밁
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                       Matches 1086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                4436
                                                                                                                               4376
                                                                                                                                                                              4316
                                                                                                                                                                                                                             4256
                                                                                                                                                                                                                                                                           4196
           361
                                                        301
                                                                                                       241
                                                                                                                                                      181
                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                 _
                                                                                                                                                                                                                                                                                                                                                                                 2436
                                                                                                                                                                                                                                                                                                                                                                                 Ø
```

```
AGGAACGAATCTTCCCCCAAACATAATATATATAATAACCATATTACAGCATACAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                            ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                        ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGAATAAGATTTTATTTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/protein_id="Can22861.1"
/protein_id="Can22861.1"
/db_xref="Gi:18617637"
/db_xref="Gi:18617637"
/db_xref="Gi:18617637"
/translation="MTKKNTLYITIIAMLTPYSVFSGDIPNSFRDLWGEQDEFYEVKL
/translation="MTKKNTLYITIIAMLTPYSVFSGDIPNSFRSRWGNMSCOGN
/translation="MTKKNTLYITIIAMLTPYSVFSGDIPNSFRSRWGNMSCOGN
ATIQX (CNYIKTKSVDVPIVDDVDNVNLFIGNEFIDSEAHNDEYHQLSRNYKKAFIQS
QTINVSDSGKXX5LSVSGNSALGITDTSYAVLNWWMYNKFRGYSNUERTINSLYRH
DLDKRYYYQFGRMDRTDLSQSISGNFNENLLPLPDIDGITRGTFOSYIKNTENFTASP
UTVMLTNFSRVEAFRNNQLLGVWYLDSGNFNLEDFARLPYGSYDLKLKIFENTQLYREE
IIPFNKGRSSIGDMQWDVFIQGGNIINDKDRYIEKQNNHKSSVNAGLRLETIKNISVQ
QGASVIDNKNYYEGSLKWNSGILSGSLNSEFSFLWGDNAKGNYQSISYTDGFSLSFYH
NDKRVDNCGRNYNAGWSGCYESYSASLSIPLLGWTSTLGYSDTYSESVYKNHILSEYG
FYNQNIYKGRTORWQLTSSTSLKWNDYNFWFALGIYNSDRQLTDKGGYISVTLTFAS
RENSLNAGYSYNYSRGKYSSNELFVDGYMTSTNNGDYHBYFMRFNKNRHHAEGRLSGR
INNRFGDLNGSFSMNKNRNTNSNHSLTGGYNNSFALTSDGFYWGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKNLVKYTGALYGDYSLGSNDAFIPVFALTSDGFYMGGSASGLTKLAGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="CAD22862.1"
/db_xref="GI:18617638"
/db_xref="GI:18617638"
/translation="mukiffetheressylfteavsadkipgdesitnifegrdruss
spkhnilnnhitayseshtlydratfeldsshitlingacptsenpssssysgetnitl
gftekrslikrelgikoykgllfksyndpsgltinsafhouknaasgasltlyipag
elkkilpeggirdpatikkrykrbysefygtytinitiklidkonigirilpegresdary
lillpeggtydfatkkrykrbysefygtytinitiklidkonigirilpegresdary
lillpiggtyigrnsydmetrydgysinsssleirfodningksdgkfylrkinddike
laytlsillagksltptmgtslniadaksleinmuritaytmpeisypvlcmpgrlol
dakvenpeaggymgninytrfpssgyt"
a 1181 c 1345 g 2277 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SFEYTGNEKTLFLLKGRTIYTCQLGKNKVHKGIVFVGDVICDVNSTSSLPDEFVKNPR
VQDLLAKNDKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="mklkktigamalitmevamsasaveknitvtasvddtidiiqad
GSSLPTAVELTYSPAASREENYKIATKVHTNVINKNVLVKLVNDDKLTNVLDSTKQLD
ITVSYGGKTLSTADVTFEPAELNEGTSGVTGVSSSQDLVIGATTAQAPTAGNYSGVVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="unnamed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="unnamed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="GI:18617636"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .4192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .5281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1086;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.3e-223;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                           4495
                                                                                                                                                                                                                                                                                                                                4435
                                                                                         4555
                                                                                                                                                                                                                                                                                                                                                                                                                                                        4375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4255
                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
ACCESSION
VERSION
                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COCUS
                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AX741418
Sequence
AX741418
                                                                                                                                                                                                      Patent:
                                                                                                                                                                                                                                    Bacterial
                                                                                                                                                                                                                                                                   Turner,A.K.,
Darsley,M.J.
                                                                                                                                                                                                                                                                                                                                                                 Enterobacteriaceae; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AX741418.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5 CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCTAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGTCACTTCTCTTGGCGGGTAAAAGTTTTAACTCCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCAGTGTTCCGGTGTTGTTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                    WO 03022306-A 8 20-MAR-2003;
Research Limited (GB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            œ
   /organism="Escherichia coli"
/mol_type="genomic DNA"
/db_xref="taxon:562"
                                                                                                    Location/Qualifiers
1. .7239
                                                                                                                                                                                                                                    vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7239 bp
from Patent W003022306.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:30524215
                                                                                                                                                                                                                                                                                                 Greenwood, J., Stephens, J.
                                                                                                                                                                 (GB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                 .c.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                               Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT 10-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
/transl_table=11
/protein_id="Cab90917.1"
/protein_id="Cab90917.1"
/db_xref="c1:30524219"
/db_xref="c1:30524219"
/translation="MNKILFIFTLFFSSVLFTFAVSADKIPGDESITNIFGPRDRNES
SPKHNILNNHITAYSESHTLYDRMTFICLSSHNTLNGAKPTSENPSSSSYSGETNITL
OFTEKRSLIKRELQIKGYKOLLFKSVNCPSGLTLNSAHFNCNKNAASGASLYLYIPAG
ELKNLPGGGTWDATLKLRVKRRYSETYGTYTINITIKLTDKGNIQIWLPQFKSDARVD
LNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDNNPKSDGKFYLRKINDDTKE
INTINSLLAAGKSLTPTNGTSLNIADAASLETNWNRITAVTMPEISVPVLCWPGRLQL
DAKVENPEAGQYMGNINVTFTPSSQTL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation-numerical inality syfsgdipnsfrdimgeodefy evkl
/translation-numerical inality syfsgdipnsfrdimgeodefy evkl
/translation-numerical inality syfsgdipnsfrdimgeogn
y (QOILGIHRIKTYPHIKFY SPESILDK INVKKEKEKKLSVLTYNSFSRRGNMSCOGN
ATIQY NCNY IKTKSVDVI VDDVDNVVNLF IGNEF LISSAAHNDE YHQLSRNVKARTQS
QTINVSDSGKY KSLSVGGNSALGITDYS YAVLMWMMY NKFNGY SUNERTINSLYFRH
DLDKRYYYOFGRMDRTDLSQSISGNENENLLPLPDIDGITGTTGYTOGSY IKTTDKFTASP
VTVMLTNFSRVEAFRNNQLLGVWYLDSGVNELDTARLPYGSYDLKLK IFENTQLVREE
IIFENGRSSIGDMQRDVFIQGGNIINDKDRY IEKQNNHKSSVNAGLRLETIKNISVQ
QGASVIDNKNYYEGSLKWMSGTLSGSLMSEFSFLWGDDMKGNYOSISYTDGFTSLSEYH
NDKRVDNCGRNY NAGWSGCY ESYSASLSIFLLGWTSTLGY SDTY SESVYKNHILSEYG
FYNQNIY KGRTYQRWQLTSSTSLKWMDYNEMPAIGIY NSEQRQLTDKGGY ISVTLTRAS
RENSLNAGYSYN SRGKYSSNELFVDGYMTSTNNGDYBEVRMRRNKNRHAEGRLSGR
INNRFGDLNGSFSMNKNRNTNSSNHSLTGGYNSSFALTSDGFYMGGSASGLTKLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSASGLTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSASGLTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSASGLTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSASGLTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSASGLTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSAGULTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSAGULTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGGSAGULTKLLAGGI
IKVKSNDTKKKLVKYNGALYGDYSLGSNDNAFIPVPALTSDGFYMGSAAGLTKLLAGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              //codon_start=1
//transl_tabl==11
/transl_tabl==11
/protein_id="Cad90915.1"
/protein_id="Cad90915.1"
/db_xref="GI:30524217"
/db_xref="GI:30524217"
/db_xref="GI:30524217"
/db_xref="GI:30524217"
/db_xref="GI:30524217"
/db_xref="GI:30524217"
/db_xref="GI-30524217"
/db_xref="GI-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="csaC"
1589. .4192
/gene="csaC"
                /transl_table=11
/protein_id="CAD90918.1"
/protein_id="CAD90918.1"
/protein_id="CAD90918.1"
/db_xref="G1:30524220"
/translation="MPGNSPHYGRWPQHDFTSLKKLRPQSVTSRIQPGSDVIVCAEMD
/translation="MPGNSPHYGRWPQHDFTSLKKLRPQSVTSRIQPGSDVIVCAEMD
EQWGYVGAKSRQRWLEYAYDBLRKTVVAHVFGERTMATLGRLMSLLSPEPDVIJWHTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="CAD90914.1"
/db_xref="GI:30524216"
/db_xref="GI:30524216"
/translation="MHKHECLLSLITPFVANANEMIYPISKDLKNGNSELIRVYSKS
/translation="MHKHECLLSULITPFVANANEMIYPISKDLKNGNSELIRVYSKS
KEIOYIKIYTKKIINPGKTEEHEVDMPNMDOGFVVTPPOKVILPAGGSKSIRLTOFRIP
KKEEIYRVYFEAVKPDSKENVIDNKKLTTELSVNIIYAALIRSLPSEQNISLNISRNA
RKNIIIYNNGNVRAGYKDIYECKSSNIDDSCVKKTHNKNIYPEKSFDTLVNNNFSYVF
WPLYESRLKGKLHVISKRYTQRIERHNLNLRQHLARLGRKSLSFSKSVELHDKVIGHY
                                                                                                                                                                                                                                                                   6346. .6849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4196. .5281
/gene="csaE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SFEYTGNEKTLFLLKGRTIYTCQLGKNKVHKGIVFVGDVICDVNSTSSLPDEFVKNPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
/protein_id="CAD90916.1"
/db_xref="GI:30524218"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILMTLAS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene=".
1028. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     283. .999
                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                              /note-"unnamed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VQDLLAKNDKG'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="csaB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1028.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L589.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="csaA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KLNHEDIEKEQGLIQLKVP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .4192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "csaA"
                                                                                                                                                                                                                              protein product;
                                                                                                                                                                                                                              IS1
                                                                                                                                                                                                                              sequence'
```

밁 Ş 밁 Ş 밁 Ş 밁 S 밁 δõ 밁 Š 녏 밁 δõ 밁 Ş δÃ

밁

Š

В

õ 밁

밁

À

'n

BCT 06-MAR-1995 cfa e, cfa d'

linear cfa

protein.

cfa

ø gene;

Enterobacteriales;

genes of the Escherichia

of the CFA/I

coli

.G.,

C011 ę,

and Gaastra,

plasmid

,B.A.M.

the CFA/I fimbrial

```
ş
                           밁
                                                 Š
                                                                            밁
                                                                                               Ş
                                                                                                                        뮵
                                                                                                                                                Ş
                                                                                                                                                                             문
                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE CO
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 1086; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNT
                                                                                                                             4976
                                                                                                                                                                              4916
                                                                                                                                                                                                                              4856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4376
                                                                                                                                                                                                                                                                              4796
                                                                                                                                                                                                                                                                                                                                                                            4676
                                                                                                                                                                                                                                                                                                                                                                                                                             4616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4196
     961
                                                   901
                                                                                                    841
                                                                                                                                                     781
                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                        TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                         AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                         AGTCATACTCTGTATGATAGGATGACTTTTTATGTTTTGTCTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGAACGAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAA 180
                                                                                                                                                                                          GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                      TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                         AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                           ACATTACAATTTACGGAAAAAAAAAAATTAAAAGAAGTTTAATAAAAAGGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTATCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                           GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                            TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                            AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                   GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTATCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGAATAAGATTTTATTTTTTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAATAAGATTTTATTTTTTACATTGTTTTTCCTCTCAGTACTTTTTACATTTGCT
  ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LNIKHYQ"
a 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1086; DB 6;
Pred. No. 3.3e-223;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                           5155
                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                            4795
                                                                                                                                                    840
                                                                                                                                                                           4975
                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                            4735
                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4495
                                                                            5095
                                                                                                                            5035
                                                                                                                                                                                                                           4915
                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4255
                                                   960
                                                                                                  900
                                                                                                                                                                                                                                                                            4855
                                                                                                                                                                                                                                                                                                                                                                                                                          4675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                         JOURNAL
MEDLINE
PUBMED
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 5
ECOCFAIA
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
mat_peptide
                         sig_peptide
                                                                                                                                                                           CDS
                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M55661.1 GI:145507

cfa a gene; cfa b gene; c
colonisation factor antic
Escherichia coli
Escherichia coli
                                                                                                                                                                                                                                                                                                                                                 operon of human
DNA Seq. 2 (4),
92329981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ECOCFAIA
E.coli CF
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaastra, W., Jordi, B.J.A.M., Mul, E.M.A., Hamers, A.M., McConnell, M.M., Willshaw, G.A., Smith, H.R. and van der Zeijst, A silent regulatory gene cfab' on region 1 of the CFA/I plasm 113 of enterotoxigenic Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hamers, A.M., Pei, H.J., Willshaw, G.A., Kus
Zeijst, B.A. and Gaastra, W.
The nucleotide sequence of the first two
fimbrial operon of human enterotoxiqenic
Microb, Pathog. 6 (4), 297-309 (1989)
                                                                                                                                                                                                                                                                                     Original source text: Escherichia coli (clone individual isolate E7473) enterotoxigenic DNA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                            Jordi, B.J., Willshaw, G.A., van de
The complete nucleotide sequence
operon of human enterotoxigenic
DNA Seq. 2 (4), 257-263 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Enterobacteriaceae; Escherichia.

1 (bases 1 to 7174)

Hamera » u
                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    569152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (sites)
                                                                                                                                                                                                                                                                                                                                                                                                               (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5281
                        /product="colonisation factor antigen a"
/protein_id="AAC4141.1"
/protein_id="AAC4141.1"
/db_xref="GI:145508"
/db_xref="GI:145508"
/translation="MAKEFYLLSLIMAPEVANANEMIYPISKDLKNGNSELVRVYSKS
KEIQYIKIYTKKIINPGTTEEYKVDIPNWDGGLVVTPQKVILPAGASKSIRLTQFKIP
KKEEVYRVYEEAVKPDSKENVIDNKKLTTELSVNIIYAALIESLPSEQNISLMISRNA
KKNIIIYNNGNVFAGVKDIYFCKSSNIDDNCVKKAYNKNIYPEKSFDTLVNNNFSYVF
IKLNIEGIEKEQGLIQLKVP"
                                                                                                                                                                         /gene="cfa a"
848. .1564
                                                                                                                                                                                                 /db_xref="taxon:562"
/clone="NTP 513"
/dev_stage="enterotox1genic"
848..1564
                                                                                                                                      /gene="cfa a"
/codon_start=1
/transl_table=11
 /gene="cfa a"
905. .1561
                                                                                                                                                                                                                                                 /mol_type="genomic
/isolate="E7473"
                                                                                                                                                                                                                                                                          /organism="Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                         (1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fimbrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ene; cfa
antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            operon:
                                                                                                                                                                                                                                                                                                                                                                                     van der Zeijst,B.A.
quence of region 1 of
                                                                                                                                                                                                                                                              DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                c gene; cfa d'
I; regulatory |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : cfa
                                                                                                                                                                                                                                                                        coli"
                                                                                                                                                                                                                                                                                                                                                                           Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۵.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cfa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kusters
```

```
gene
   gene
                                                                                                                                                                                                                                                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                     mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                   sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                               mat_peptide
                                                                              sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sig_peptide
                                                                                                                                                                                                                                                                                                                                        2236...4776
/gene="cfa c"
/product="colonisation f
4783...5865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="cfa_b"
1593, 71
                                                                                                                                                                                                                                                                                                           /gene="cf
4783. .58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1662..2102
/gene="cfa b"
/product="colonisation factor.
2170..4779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="cfa b"
1662. .2102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="cfa a"
/product="colonisation
1593, .2105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ASRENSLNTGYSYNYSRGNYSSNELFYDGYMTSTNNGDYHEAGMRFNKNRHNAEGRLS
GRINNRFGDLNGSFSMNKNRNTNSTNHSLTGGYNSSFALTSDGFYWGGSTAGLTKLAG
GIIKVKSNDTKKNLYKVTGTLYGDYSLGSNDNAFIPVPALTPASLIIEDNNYGDNNIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QQQTINLSDSGKYRLSISGNSALGITDTSYAVLNWMMYNKSNGYSNNEKTINSLYF
RHDLDKRYYYQFGRMDRTDLSQSISGSFNFNLLFLPDLDDGIFIGTTQSYIKNTDKFIA
SPVTVMLTNESRVEAFRDDGLLGVWLDSGYNEELDTARLFYGSYDLKLK.IFENTOLYF
EEIIFFNKGRSSIGDMQWDIFVQGGNIVNDNDRYIEKQNNHKSSINTGLRLFITKNIS
YQQGVSVIDNKSYYEGSLKWNSGILSGSLNSEYSFLWGDNAKCMYQSISYTDGFSLSF
YHNDKRVDNGCRNYNAWSGCYESYSASLSIPLLGWYSTLGYSDTYSBSYYKSHILSE
XGFYNQNIYKGRTORWQLTSSTSLKWMDYNFMPAIGIYNSEQROLTDKGGYISVTITR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MKHKKKNRLVVAISVALIPYIGVTGDIPDSFRDLWGEQDEFYEV
KLYGQTLGIHRIKTTPTHIKFYSPESILDKINLKKEKEKELSVFFTNSFSRNGNMSCQ
GNTTIQYNCNYIKTKSVDVIVDDVDNVNLFIGNEFLDSEAHNDEYHQLSRNVKKAFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="cfa c"
2170 .4779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MKFKKTIGAMALITMFVAVSASAVEKNITVTASVDPAIDLLQAD
GNALPSAVKLAYSPASKTFESYRVMTQVHTNDATKKVIVKLADTPQLTDVLNSTVQMP
ISVSWGGQVLSTTAKEFEAAALGYSASGVNGVSSSQELVISAAPKTAGTAPTAGNYSG
 /gene="cfa e"
/product="colonisation factor
complement(6388. .6822)
                                                                                                                                     /translation="MNKILFIFTLFFSSGFFTFAVSADKNPGSENMINTIGPHDRGGS
SPIYNILNSYLTAYNGSHLLDRMSFLCLSSQNTLNGACPSSDAPGTATIDGENNITL
QFTERRSLIK RELQIKGYKOPLFKNANCPSKLALNSSHFQCNNEDASGAFLSLYIPAG
ELNKLPFGGVWNAVLKLNVKBRYDTTYGTYTINITVNLTDKGNIQIWLPQFKSNARVD
                                                                                                                                                                                                  /transi_table=11
/product="colonisation factor
/protein_id="ack41417.1"
/db_xref="GI:145511"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFSFEYTGNEKTLFLLKGRTIYTCQLGKNKVHKGIVFVGDVICDINSTSSLPDEFVKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1593. .2105
/gene="cfa_b"
                                                                                            LNLRPTGGGTYIGRNSVDMCFYDGYSTNSSSLEIRFQDDNSKSDGKFYLKKINDDSKE
LVYTLSLLLAGKNLTPTNGQALNINTASLETNWNRITAVTMPEISVPVLCWPGRLQLD
AKVKNPEAGQYMGNIKITFTPSSQTL"
                                                                                                                                                                                                                                                                                                                                                                                        /gene="cfa
2236. .477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="colonisation factor
/protein_id="AAC41416.1"
/db_xref="GI:145510"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VVSLVMTLGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="colonisation factor
/protein_id="AAC41415.1"
/db_xref="GI:145509"
                                                 /gene="cfa e"
4843. .5862
                                                                                                                                                                                                                                                                                                                                                                                                                                   PRVQDLLAKNDKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ILAPTNNDMFMLPGNVYPVEIETKVSVSYIGRGFDPNGTPLSGAHVLNEPHVILDEDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="cfa c"
                                                                                                                                                                                                                                                                  /codon_start-1
                                                                                                                                                                                                                                                                               /gene="cfa e"
/note="unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .1661
                                                                                                                                                                                                                                                                                                                           fa e"
                                                                                                                                                                                                                                                                                                                                                                                                 C<sub>a</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď
                                                                                                                                                                                                                                                                             sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    factor
                                                                                                                                                                                                                                                                                                                                                         factor antigen
                                                                                                                                                                                                                                antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         antigen
                 antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ק
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۵
                   e.
                                                                                                                                                                                                                                   œ
                                                                                                                                                                                                                                                                                                                                                         ď
                              밁
                                                                                                                    δÃ
                                                                                                                                                                             Ş
                                                                                                                                                                                                                  닭
                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
δÃ
                                                          Š
                                                                                         밁
                                                                                                                                                     ₽
                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4843
                                                                                                                                                                                                                  5323
                                                                                                                                                                                                                                                                                                                                          5203
                                                                                                                                                                                                                                                                                                                                                                                                     5143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4783
                                                                                            5443
                                                                                                                                                       5383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                5083
                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
   781
                                                              721
                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ol Similarity 947; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ø
```

```
1 ATGAATAAGATTTTATTTTTTACATTGTTTTTCCTCTTCAGTACTTTTTACATTTGCT
                      GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                               TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                   AGACGATATAGTGAGACCTATGGAACTTACACTATAAATTATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                              GAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                             AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATTACAATTTACGGAAAAAAGAAGTTTAAATAAAAAGAGAGCTACAAATTAAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAATAAAATTTTATTTTTTACATTGTTTTTTTTTTCTTCAGGGTTTTTTTACATTTGCC
                                                                                                                                                                                                          AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                      AGACGATATGATACAACCTATGGGACTTACACTATAAACATCACAGTTAATTTAACTGAT
                                                                                                                                                                                                                                                                                                                                        GAATTAAATAAATTACCTTTTGGGGGGGGTCTGGAATGCCGTTCTGAAGCTAAATGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                          AAACAATTTTTGTTCAAAAATGCTAATTGCCCATCTAAACTAGCACTTAACTCATCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATTACAATTTACGGAAAAAAGAAGTCTAATTAAAAGAGAACTGCAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAGCATGCCCAAGCAGTGATGCCCCCTGGCACTGCTACAATTGATGGCGAAACAAATATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGAACGAATCTTCCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTATCGGCAGATAAAAATCCCCGGAAGTGAAAACATGACTAATACTATTGGTCCCCATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cfa d'"
complement(6388. .6822)
/gene="cfa d'"
/gene="cfa d'"
/note="truncated CfaD-like protein with a stop codon frameshift deletions between bp 6029 and 6824."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="colonisation factor antigen d'"
/protein_id="AAC41418.1"
/protein_id="AAC41418.1"
/db_xref=="01:145512"
/translation="MDFKYTEEKEMIKINNIMIHIYTVLYTSNCIMDIYSEEEKITCS
/translation="MDFKYTEEKEMIKINNIMIHIYTVLYTSNCIMDIYSEEEKITCS
SNRLYFLERGYNISVBIQKQILSEKPYIAFRLMGDILBHLKNALMIIYGMSKIDINDC
RNMSSRIIKTEVDKYLLDVLKNINSVDSVFISSLIYULSKI"
1129 c 1271 g 2332 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78.5%;
87.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 852.4;
Pred. No. 4.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; DB 1;
.9e-173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 7174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                 5502
                                                                                                                                                                                                                                                                                                                                      5322
                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                          5262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4842
                                                                                                                         720
                                                                                                                                                                   5442
                                                                                                                                                                                                          660
                                                                                                                                                                                                                                                      5382
                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
5562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
```

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
ECCOOCD
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                              MMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAI
                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ECCOOCD
E.coli (
x76908
                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission Submitted (24-DEC-1993) J.J. Scott, Emory Uni. School of Medicine, Submitted (24-DEC-1993) J.J. Scott, Emory Uni. School of Medicine, Dep. of Microbiol. and Immunol., 1510 Clifton Rd, Atlanta 30322,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 5336)
Scott, J.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; Escherichia.

1 (bases 1 to 5336)
Froehlich, B.J., Karakashian, A., Melsen, L.R., Wakefield, J.C. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X76908.1 GI:488735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 CTCTAG 1086
||||||
| CTCTAG 5865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGAGGCTGGACAATATATGGGGAATATTAAAATTACTTTCACACCAAGTAGTCAAACA 5859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGAAAAAT 5799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGTCACTTCTCCTGGCAGGTAAAAATTTAACACCAACAAATGGACAGGCATTAAATAT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and Coob are required for assembly of CS1 pill Microbiol. 12 (3), 387-401 (1994)
                                                                                                                                                                                                                                                                                                                                                                                        cited as #76908 in the journal.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cooC and cooD genes.
 /protein_id="CAA54229.1"
/db_xref="GI:488736"
/db_xref="SPTREMBL:Q47114"
/db_xref="SPTREMBL:Q47114"
/translation="MIGGKSSKVVIVLSVLIGSSSGFASKYNLVDIPESFRDLWGEQDELLEVRLYGQSLGVHRIKSTPTTVAFESPDNLLDKIEINKGKEADLRVLMRGSFQRNGNMSCQGYTGQNNCNYIKTNTVAVIVDDVENVLNLFIGNEFLASGENDSDYYQPSKNTK
                                                                                                                                                                                                     /gene="cooc"
85. .2703
                                                                                                                                                                                                                                          /citation=[1]
85. .2703
                                                                                                    /product-"CooC"
                                                                                                                    /evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                         /organism="Escherichia coli"
/mol_type="genomic DNA"
/strain="LMC10"
                                                                                                                                                      /codon_start=1
                                                                                                                                                                      /citation=[1]
                                                                                                                                                                                      /gene="coot"
                                                                                                                                                                                                                                                                                     /db_xref="taxon:562"
/clone="pEU494"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cooD gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 07-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5622
                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                   Š
                                                                                 Q
                                                                                                                  рь
                                                                                                                                                 Ş
                                                    В
                                                                                                                                                                                      밁
                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                        mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sig_peptide
                                                                                                                    2763
                                                                                                                                                                                      2703
                   187
                                                                                    127
                                                                                                                                                                                                                                                       641;
                                                                                                                                                     67
                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                       Similarity
ACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCA
                                                  GTACAATCACCAATATATAACATCTTTACGAATCATGTGGCTGGATATAGTTTGAGTCAT
                                                                                 GAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCAT 186
                                                                                                                  CCGGAAACTACAGTAGGTAATCTGACGAAGAGTTTTCAAGCCCCTCGTCTGGATAGAAGC
                                                                                                                                                 GCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAAC 126
                                                                                                                                                                                    ANAAAGATATTTATTTTTTGTCTATCATATTTTCTGCGGTGGTCAGTGCCGGGCGATAC
                                                                                                                                                                                                         AAGATTTTATTTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTAICG 66
                                                                                                                                                                                                                                                                                                                                         1553
                                                                                                                                                                                                                                                      Conservative
```

/insertion_seq="IS2" 1021 c 1206 g 1556 +

28.6%;

Score 310.8; I Pred. No. 1.1e 0; Mismatches

.8; DB 1; 1.1e-56; 422;

Indels Length 5336;

27;

5

246 2882 2822

2762

0,

4476. .>5336

/product="CooD" /citation=[1]

'gene="cooD"

```
KAFIHSQTINLSDTGNYENLSIVGTGSLGITDNSYAILGWAANYNRYKSYNYNEQSIN
SLYFRHDFEKNEYQLGRIDGNSDLSQSSGGNEWELLEVPDIYGMRAGTTQSYIKNTG
KSVASPYTINLTHFSRVEAYRNGQLLGVWYLDAGISELDTERLDGNYDLKIKIFEQE
QLVREEIVPFNKSGSSIGDTHWDVFVQAGDIINDNGRYVEKQKNHKSAINSGLRLPLT
RNLAVQLGGAVLDNKNYYETGLLWNSGLLDGSLNSKFTFLEGDDTHGNYQNUSYTDGF
SLSFYHNDKRVDDCGKDYNMGMSGCYESYSASLSIPVGMNSTLAYSNTYSTSYRYD
AVSEYVBYYYYKGGTKRRQLTASTVYRMGDYNIMPTIGYYNSEQKQMADKGGYLSLTL
TRVDGGKSLNAGYSYNYSRGRYTSNDAFVEGHLVSDTNYSYERLSARVSGNRYYTEGG
VSGRINNFFGDLNGVKNKKKSHDTHSLGYNSDFNYSYERLSARVSGNRYYTEGG
VSGRINNFFGDLNGVKNKKKSHDTHSLGSNDSLFIPVPALMQASLTIREBNTNKSK
NGUVEYKSNEDESELLNVKGSSYGHYSLGSNDSLFIPVPALMQASLTILEBNTNKSK
NGUVLAFTKNTFFMLFGSYYPIDVSANYSFTYVGRGVDVKGRPLSGAYILNAQNIVLDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="CooC"
/citation=[1]
2689. .2692
                                                                                                                                                     EINKLPFGGIWEATLILRLSRYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNP
RVDLNLRPIGNYKYSGSNSLDMCFYDGYSTNSDSMYIKFQDDNPTNSSEYNLYKIGGT
EKLPYAVSLLMGEKIFYPVNGQSFTINDSSVLETNWNRVTAVAMPEVNVPVYLCWPARL
                                                                                                                                                                                                                                                   /protein_id="CAA54230.1"
/db_xref="GI:488737"
/db_xref="SPTREMBL:Q47115"
/db_xref="SPTREMBL:Q47115"
/tanslation="MKKIFIFLSIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQS
PIYNIFTNHVAGYSLSHSLYDRLVFLCTSSSNPVNGACPTIGTSGVQYGTTTITLQFT
EKRSLIKRNINLAGNKKPIWENQSCDFSNLMVLNSKSWSCGAHGNANGTLLNLYIPAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cooC"
/citation=[1]
2700. .3791
/citation=[1]
2754. .3788
                                                                                           LLNADVNAPDAGQYSGQIYITFTPSVENL"
2700. .2753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="cooD"
2700. .3791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /citation=[1]
157. .2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NGGFSFESSENEKELFLLKDKTIYSCSLDRSEMRNGIAFVGEVACNSTIKELLPEKLV
                                                         /gene="cooD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2700. .3791
/gene="cooD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TNSRIHDLLAYNODTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="coot"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="cooC"
```

```
RESULT 7
AX741413
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                      SOURCE
ORGANISM
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               БР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           478
                                                                                                                                                                                                                                                                                                                                                                                                 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              307
                                                                      AX741413
Sequence 3
AX741413
AX741413.1
 Escherichia coli
Escherichia coli
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCATTAAATATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTACCATATGCTGTTTCACTGCTTATGGGAGAAAAATATTTTATCCAGTGAATGGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGATCTTAACTTGCGTCCAACTGGTGGGGGGCACATATATTGGAAGAAATTCTGTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAATTTACGGAAAAAAGTTTAATAAAAAGAGAGCTACAAATTAAAAGGCTATAAACAA
                                                                                                                                                                                                                    AGTGTCGAAA
                                                                                                                                                                                                                                                     AGTAGTCAAA 1078
                                                                                                                                                                                                                                                                                         GATGTAAATGCTCCCGATGCAGGACAGTATTCAGGACAGATATATAACATTTACACCC
                                                                                                                                                                                                                                                                                                                          AAAGTGGAAAATCCCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCA
                                                                                                                                                                                                                                                                                                                                                            GCTATGCCGGAAGTTAATGTTCCAGTATTATGCTGGCCAGCAAGATTGCTATTAAATGCT
                                                                                                                                                                                                                                                                                                                                                                                  ACCATGCCAGAAATCAGTGTTCCGGTGTTGTGTTTGGCCTGGACGTTTTGCAATTGGATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                  TCATTTACTATCAATGACAGTAGTGTACTCGAAACAAACTGGAATCGAGTAACCGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTGCATATACTTTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATAATCCTACCAATTCATCTGAATATAATCTTTATAAGATA---GGGGGCACTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATTTAACTGATAAAGGTAATATTCAGGTATGGCTTCCAGGGTTTCACAGCAACCCGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAAGATATGGCGAAGTCAGTAGCACCCATTACGGCAATTATACCGTAAATATTACGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAAG-----ACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGAGCTGTGGGGCTCACGGAAATGCTAACGGAACACTTCTAAATCTGTATATCCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAATATGGGAGAATCAGAGTTGCGACTTTAGCAATCTAATGGTGTTGAATTCGAAGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTT----AACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGTTTACAGAAAAAAGAAGTCTGATAAAAAGAAATATTAATCTTGCAGGTAATAAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCCAACCATTGGAACATCTGGAGTTCAAT - - - - - ACGGTACTACAACCATAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAAACATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTTATATGACAGGATTGTTTTTTATGTACATCCTCGTCGAATCCGGTTAATGGTGCT
                                                                                                           from
                                                                          GI:30524203
                                                                                                           Patent W003022306
   Gammaproteobacteria;
                                                                                                                        ďq
                                                                                                                            DNA
                                                                                                                          linear
   Enterobacteriales;
                                                                                                                            PAT
                                                                                                                            10-MAY-2003
                                                                                                                                                                                                                                                                                         3773
                                                                                                                                                                                                                                                                                                                          1068
                                                                                                                                                                                                                                                                                                                                                             3713
                                                                                                                                                                                                                                                                                                                                                                                               1008
                                                                                                                                                                                                                                                                                                                                                                                                                                  3653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      588
                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                           Š
                                                                      밁
                                                                                                    δÃ
                                                                                                                                           밁
                                                                                                                                                                         δÃ
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                       밁
   밁
                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
   2943
                                                                                                                                             2823
                                                                                                                                                                                                                                                                                       2703
                                                                        2883
                                                                                                        187
                                                                                                                                                                                127
                                                                                                                                                                                                                                                                                                                                                            641;
                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Darsley, M.J.
Bacterial va
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Turner, A.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Acambis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent:
TGCCCAACCATTGGAACATCTGGAGTTCAAT
                                                                                                                                                                GAATCTTCCCCCAAACATAATATATATATAAACATAATAACCATATTACAGCATACAGTGAAAGTCAT
                                                                                                                                                                                                                                                 GCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGGAAC
                                                                                                                                                                                                                                                                                                           AAGATTTTATTTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCG
                                 TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTA
                                                                                     ACTCTGTATGATAGGATGACTTTTTTATGTTTGTTCTTCTCACAATACACTTAATGGAGCA
                                                                                                                                                                                                                  CCGGAAACTACAGTAGGTAATCTGACGAAGAGTTTTCAAGCCCCTCGTCTGGATAGAAGC
                                                                                                                                                                                                                                                                                     AAAAAGATATTTATTTTTTTTCTCTATCATATTTTCTGCGGTGGTCAGTGCCGGGCGATAC
                                                                    AGCTTATATGACAGGATTGTTTTTTTATGTACATCCTCGAATCCGGTTAATGGTGCT
                                                                                                                                           GTACAATCACCAATATATAACATCTTTACGAATCATGTGGCTGGATATAGTTTGAGTCAT
                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /Lrams lation="MIGGESSKVVIVLSVLIGSSSGFASKYNLVDIPESFRDLWGEQD
ELLEVRLYGQSLGVHRIKSTPTTVAFESPDNLLDKIEINKGKEADLRVLMRGSFQRMG
MSCQGYTGQNNCNYIKTNTVAVIVDDVENVLNLFIGNEPLASGENDSDYYQPSKNYK
KAFILSQTINLSDTGNYENLSLYGTGSLGITDNSYAILGWAANYKRYKSYNYNEQSIN
SLYFRHDFEKNFYYQLGRIDRSDLSQSSGGNFNFDLLPVDDIYGMRAGTTQSYIKNTG
KSVASPVTINLTHFSKYBAYRNQCLLGYWYLDAGISELDJERLPDGNYDLKLKIFEQE
QLYREEIVPPNKSGSSIGDTHDUFVQAGDIIKNGRYVEKQKNKKSAINSGLRLPLT
RNLAVQLGGAVIDNKNYYETGILWNSGLLDGSLNSKFTFLFGDDYHGNYQNVSYTDAF
SLSFYHNDKRYDDCGKDYNMGWSGCYESYSASLSIPVKGWNSTLAYSNYYSTSVYRYD
AVSEYVFYYYKGRTKRWQLTASTVYRWGDYNIMPTIGVYNSEQKOWADKGGYLSLTL
TRVDGGKSLNAGYSYNYSGRNYSTDAFVEGHLYSDTNYSYRELSARVSGNRYTEGG
VSGRINNRFGDLNGTLNVNKNRKSHDTTHSLTAGYSSFALTTDGIYWGGSASGLTNL
SGGIYRVKSNEDESELLNVKGSSYGHYSIGSNDSLFIPVBLMQASLTILBENTNKSKN
IDVLAPTKNTFFMLPGSVYPIDVSANVSFTYVGRGVDVGGRPLSGAYILNAQNITLDE
NGGFSFESSENEKELFLLKDKTIYSCSLDRSEMRNGIAFVGEVACNSTIKELLPEKLY
TNORTHDLLAYNQDTE"

TNORTHDLLAYNQDTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Research Limited
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO 03022306-A 3 20-MAR-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="CAD90907.1"
/protein_id="CAD90907.1"
/db_xref="G1:30524205"
/translation="MKKIFIFLSIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQS
/translation="MKKIFIFLSIIFSAVVSAGRYPETTVGNLTKSFQAPRLDRSVQS
PIYNIFTNHVAGYSLSHSLYDRIVFLCTSSSNPVNGACPTIGTSGVQYCTTTITLQFT
EKRSLIKRNINLAGNKKPIWENQSCDFSNLMYLNSKSNSCGAHGNANGTLLNLYIPAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLNADVNAPDAGQYSGQIYITFTPSVENL"
1021 c 1206 g 1556 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EINKLPFGGIWEATLILRLSRYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNP
RVDLNLRPIGNYKYSGSNSLDMCFYDGYSTNSDSMYIKFQDDNPTNSSEYNLYKIGGT
EKLPYAVSLLMGEKIFYPVNGQSFTINDSSVLETNWNRVTAVAMPEVNVPVLCWPARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="CAD90906.1"
/db_xref="GI:30524204"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism-"Escherichia
/mol_type-"genomic DNA"
/db_xref="taxon:562"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="unnamed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="unnamed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Greenwood, J.,
                                                                                                                                                                                                                                                                                                                                                                          28.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia
                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                        Score 310.8; DB 6;
Pred. No: 1.1e-56;
0; Mismatches 422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Stephens, J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  product;
 ACGGTACTACAACCATAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Beavis, J.C.
                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                               5336
                                                                                                                                                                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
```

Gaps

2762

126

2996 306 2882 186 2822

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                            RESULT 8
AY216491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                       REFERENCE
                                                                                                                                                    VERSION
                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                           1069
                                                                                                                                                                                                                                                                                                                                                                                                3714
                                                                                                                                                                                                                                                                                                                                                                                                                                   1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           307
                                                                                                                                                                    sequence.
AY216491
Biediger, W. and Wolf, M.K. CS17 of Enterotoxigenic E
                                                    Escherichia coli
Bacteria; Proteobacteria; Gamma;
Enterobacteriaceae; Escherichia
                                                                                                                                                  AY216491.1
                                                                                                               Escherichia
                                                                                                                                                                                                         Escherichia
                                                                                                                                                                                                                            AY216491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCATGCCAGAAATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAA
                                                                                                                                                                                                                                                                                                                                                                                              GATGTAAATGCTCCCGATGCAGGACAGTATTCAGGACAGATATATAACATTTACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                              AAAGTGGAAAATCCCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCA 1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTATGCCGGAAGTTAATGTTCCAGTATTATGCTGGCCAGCAAGATTGCTATTAAATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCATTTACTATCAATGACAGTAGTGTACTCGAAACAAACTGGAATCGAGTAACCGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCATTAAATATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTACCATATGCTGTTTCACTGCTTATGGGAGAAAAATATTTTATCCAGTGAATGGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTGCATATACTTTGTCACTTCTTCTTGGCGGGGTAAAAGTTTAACTCCAACAAATGGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATAATCCTACCAATTCATCTGAATATAATCTTTATAAGATA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTAGACCTGAATCTGCGCCCTATCGGTAATTATAAATATAGTGGTAGTAATTCACTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATTTAACTGATAAAGGTAATATTCAGGTATGGCTTCCAGGGTTTCACAGCAACCCGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGAAATCAACAAATTGCCTTTTGGAGGGATATGGGAGGCAACTCTGATCTTACGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAGCTGTGGGGCTCACGGAAATGCTAACGGAACACTTCTAAATCTGTATATCCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAATATGGGAGAATCAGAGTTGCGACTTTAGCAATCTAATGGTGTTGAATTCGAAGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTATTGTTCAAAAGTGTTAACTGCCCCATCCGGCCTAACACTT-----AACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGTTTACAGAAAAAAGAAGTCTGATAAAAAAGAAATATTAATCTTGCAGGTAATAAGAAA
                                                                                                                                                                                                                                                                                                                                                       AGTAGTCAAA 1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCGATCTTAACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAGATATGGCGAAGTCAGTAGCACCCATTACGGCAATTATACCGTAAATATTACGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA
                                                                                                                                                                                                                                                                                                                      AGTGTCGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGTGTTTCTATGATGGATATAGTACAAACAGTGATAGCATGGTAATAAAGTTCCAGGAT
                                   (bases 1 to 6956)
                                                                                       co11
                                                                                                                                                                                                         coli strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -ACGATATAGTGAGACCTATGGAACTTACACTATAAAATATCACTATT
                                                                                                                                                                                                       6956 bp
Escherichia
                                                                          Gammaproteobacteria;
                                                                                                                                                                                                     plasmid
                                                                                                                                                                                                         CS17
                                                                                                                                                                                                                        linear
                                                                                                                                                                                                       gene locus,
                                                                          Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GGGGGCACTGAAAAA
                                                                                                                                                                                                                          BCT
                                                                                                                                                                                                       complete
                                                                                                                                                                                                                          12-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3593
                                                                                                                                                                                                                                                                                                                                                                                            3773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 6956)
Biediger, W. and Wolf, M.K.
Direct Submission
Submitted (09-JAN-2003) Enteric Infections, Walter Reed Army
Institute of Research, 503 Robert Grant Ave, Silver Spring,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                   /translation="mysknesklsivlefflssplgfadknkitnipesfrdlmgeod
geleyrefgosigyhriklipptyvafespdsildkieinkereadlrvlmrgsforng
mmscogyttgonncnyiktniptyvafespdsildkieinkereadlrvlmrgsforng
mmscogyttgonncnyiktniptyvafespdsildinsyailgmedeskytk
kafingotinlsdtgrenlstygtggslgindnsyailgmedelyddirgraftygyikntg
slyffhdferkfytglgridrolsossggnenedleppdiygmragtygyikntg
slyffhdferkfytglgridrolsossggnenedleppdiygmragtygyikntg
ksyaspytimlthfsryeraphopfygadiikndrafseldterledgnydlkkiffoge
glyrreinlththfsryeraphopfygadiikndrafseldterledgryeraph
rnlapolggavidnknyyetgilmrsgfldgslnskftelfddthgryonvsytdgf
nlsfyhndkryndcgkdynmgmsgcyfsyssasisipykgmnsyllaysmysstyrtegg
vsgrinnrfgdlmgtisynkmrstydafvegrlyssprkmadkgrysgrytgggassglinl
trydggrslnagysynysrgnktskhotthgysssskattddgiymgsassglinl
cggilmnrfgdlmgtisynkmrkshotthgysssskattddgiymgsasglinl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /moi_type="genomic DNA"
/strain="p537-4"
/db_xref="taxon:562"
/plasmid="unnamed"
/note="naturally-occurring p
                                                                                                                                                                                                                                                                                                                                                                                                                          1506. .4124
/gene="csbC"
1506. .4124
/gene="csbC"
/note="putative 1
                                 TNSRIHDLLAYNODTE"
                                                                    SGGIVRVKSNEDESELLNVKGSSYGNYSLGSNDSLFIPVPALMQASLTIKENTNKSKN
IDVLAPTKNTFFMLPGSVYPIDVSANVSFTYVGRGVDVKGRPLSGAYILNAQNIVLDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MKLKKTIGAMAMATLFATMAASAVEKNITVRASVDPKLDLLQAD
GTSLPDSIALTYSSASNNFEVYSLNTAIHTNDKSKGVVVKLSASPVLSNIMKPNSQIP
MKVTLGGKTLNTTDTEFTVDTLNFGTSGVENVSSTQQLTIHADTQGTAPEAGNYQGII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="csb
933. .1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DTKDESSNKTDNLIQVPIT 933. .1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="hrklflsllmipevtkanemyypiskeikgasseiiriyskskd
TQYIKYYAKKYVGPGTKDEYEIDAPNMEGALVYPBARVILFSKNKSVELTQLBAPTY
EEVYERYFESYKPEAQENSSGNKTLKTDLSVBVIYAALIRILFINIKTBASVSISSSN
NILIKNTGNVRLGINNYFFCKSSSINDDCVKKSYNKNYYPGYLLDTMIYNDGYSHLFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SLIMTOKT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/product="CsbA"
/protein_id="AAO60096.1"
/db_xref="GI:28932776"
                                                    NGGFSFESSENEKELFLLKDKTIYSCSLDRSEMRNGIVFVGEVACNSTIKELLPEKLV
                                                                                                                                                                                                                                                                                                                                  /protein_id="AA060097.1"
/db_xref="GI:28932777"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="csbA"
/note="cs17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AA060095.1"
/db_xref="GI:28932775"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="csbB"
/note="CS17 |
                                                                                                                                                                                                                                                                                                                                                                     /product="CsbC"
                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="CsbB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "csbA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "csbB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fimbrial subunit; structural subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fimbrial
                                                                                                                                                                                                                                                                                                                                                                                                                              fimbrial usher"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             accessory protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plasmid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Army
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CS17
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
      밁
                        δ
                                                           밁
                                                                                δ
                                                                                                                                          S B
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
      4838
                                                                                                                    4718
                                                                                                                                                                                                                                                                                                                                                        4478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4124
                                                                                                                                                                                4658
                                                                                                                                                                                                                                                                                                  4538
                                                                                                                                                                                                                                                                                                                                                                                                                  4418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127
                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                                                                                                     367
                                                                                                                                                                                                                                                                                                                                                                                                                                               307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        634;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAAAGATATTTATTTTTTTTGTCTATCATATTTTCTGCGGTGGTCAGTGCCGGGCGATAC 4183
    ATGTGTTTCTATGATGGATATAGTACAAACAGTGATAGCATGGTAATAAAGTTCCAGGAT
                                                                                                                                  AAATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGC
                                                                                                                                                                                                                                                      GGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA
                                                                                                                                                                                                                                                                                               TGGTCCTGTGGGGCTAACGGAAATGCTAACGGAACACTTCTAAATCTGTATATCCCTGCA 4597
                                                                                                                                                                                                                                                                                                                 CATTTTAACTGTAATAAAACGCGGCTTCAGGTGCAAGTTTTATATTTTATATATTCCTGCT 477
                                                                                                                                                                                                                                                                                                                                                                                                               CAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAA 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTTCTCACAATACACTTAATGGAGCA 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTACAATCACCAATATAAACATCTTTACGAATCATGTGGCTGGATATAGTTTGAGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATCTTCCCCCAAACATAATATATATATAAATAACCATATTACAGCATACAGTGAAAGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGAAACTACAGTAGGTAATCTGACGAAGAGTTTTCAAGCCCCTCGTCAGGATAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGATTTTATTTTACATTGTTTTTCTCTCTTCAGTACTTTTTACATTTGCTGTATCG
                                                                           GTCGATCTTAACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGAT 708
                                                                                                                    GATTTAACTGATAAAGGTAATATTCAGGTATGGCTTCCAGGGTTTCACAGCAACCCGCGT 4777
                                                                                                                                                                                               AAAAG-----ACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATT
                                                                                                                                                                                                                                                                                                                                                        CCAATATGGGAGAATCAGAGTTGCGACACTAGCAATCTAATGGTGTTGAATTCGAAGTCT
                                                                                                                                                                                                                                                                                                                                                                                  TTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAG------CT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCCCAAACCGTGGAACATCTGGAGTTCAAT-----ACGGTACTACAACCATAACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCTTATATGACAGGATTGTTTTTTTATGTACATCCTCGTCGAATCCGGTTAATGGTGCT 4363
                              ATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGAT 768
                                                           GTAGACCTGAATCTGCACCCTATCGGTAATTATAAATATAGTGGTAGTAATTCACTCGAC
                                                                                                                                                                              TCAAGATATGGCGAAGTCAGTAGCACCCATTACGGCAATTATACCGTAAATATTACGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTA 306
                                                                                                                                                                                                                                      GGAGAAATCAACAAATTGCCTTTTGGAGGGATATGGGAGGCAACTCTGATCTTACGCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       **CHARS | atlon="MKKIFIFLS IIFSAVVSAGRYPETTVGNLTKSFQAPRQDRSVQS
PIYNITHNYAGYSLSHSLYDRIVFLCTSSSNEVNGAC NRGTGSVGYGTTI IIQFT
EKRSLIKRNINLAGNKKP IWENGSCDTSNLMYLNSKSNSCGANGNANGTLLNLIYIPAG
EINKLPFGGIWEATLILLSRYGEVSSTHYGNYTVNITVDLTDKGNIQVWLPGFHSNP
RYDLNLHPIGNYKYSGSNSLDMCFYDGYSTNSDSMY IKFQDDNPTYSSEYNLYKIGGT
EKLPFAVSLLHGEKIFHEVNGQSFITINDSSYLETINMNKYTAVAMPEVNVPVLCMPARL
LLNADYNAPDAGQYSGQIYITFTPSVENL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="CsbD"
/protein_id="AA060098.1"
/db_xref="GI:28932778"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="csbD"
/note="CS17 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .5212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1554 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 309.6; DB 1;
Pred. No. 1.9e-56;
0; Mismatches 429;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    assembly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                           . 4837
                                                                                                                                                                                                         588
                                                                                                                                                                             4717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
    4897
                                                                                                                                                                                                                                      4657
                                                                                                                                                                                                                                                                                                                                                        4537
                                                                                                                                                                                                                                                                                                                                                                                    417
                                                                                                                                                                                                                                                                                                                                                                                                               4477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4243
                                                                                                                                                648
                                                                                                                                                                                                                                                                  537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4;
                                                                                                                                                                                                                                                                                                                                                                                  PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 9
ECCOTABCD
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                            gene
   CDS
                                                                                      -35_signal
-10_signal
                                                           RBS
                                                                                                                                                             misc_feature
                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ECCOTABCD
E.coli coth, cotb, cc
Z47800
Z47800.1 GI:897725
Coth gene; cotb gene;
Escherichia coli
Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                            Enterobacteriaceae; Escherichia.

1 (bases 1 to 5798)

1 (bases 1 to 5798)

Froehlich, B.J., Karakashian, A., Sakellaris, H. and Genes for CS2 pili of enterotoxigenic Escherichia interchangeability with those for CS1 pili Infect. Immun. 63 (12), 4849-4856 (1995)
                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (18-JAN-1995) Froehlich B. J., Emory University,
Department of Microbiology and Immunoloy, 1510 Clifton Rd,
                                                                                                                                                                                                                                                                                                                                                                                                Froehlich, B.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriaceae; Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                              7591145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATAATCCTACCTATTCATCTGAATATAATCTTTATAAGATA---GGGGGCACTGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTAGTCAAA 1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGTGGAAAATCCCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCA 1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTATGCCGGAAGTTAATGTTCCAGTATTATGCTGGCCAGCAAGATTGCTATTAAATGCT 5134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCATGCCAGAAATCAGTGTTCCGGTGTTGTTGTTTGGCACGTTTGCAATTGGATGCA 1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTACCATATGCTGTTTCACTGCTTATGGGAGAAAAATATTTCATCCAGTGAATGGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGCATATACTTTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGTCGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cotA, cotB, cotC
                               499.
                                                                                        446
                                                                                                                                                                369.
                                                                                                                                                                                                                                                                                                                                           30322
/gene="cotB"
499. .1215
                                                                                                                                                                                                                                                 /mol_type="genomic DNA
/strain="C91f-6"
/db_xref="taxon:562"
                            /citation=[1]
199. .1215
                                                                                                                                 /citation=[1]
                                                                                                                                                /note="100% homologous
                                                                                                                                                                                                        /note="99% homolgous
                                                                                                                                                                                                                                                                                             /organism="Escherichia
                                                                     citation=[1]
                                                                                                                    'label-IS1
                                                                                                                                                                             /label=IS3
                                                                                                                                                                                         citation=[1]
                                                                                                                                                                                                                                   clone="pEU5006"
                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5204
                                                                                                                                                             .401
                                                           .488
                                                                                        .451
                                                                                                                                                                                                                                                                                                                                                                                                               5798)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cotc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and cotD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ď
                                                                                                                                                                                                        ៩
                                                                                                                                                                                                                                                                                            coli"
                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genes.
                                                                                                                                                                                                        last
                                                                                                                                                bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                        369
                                                                                                                                                                                                        bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Enterobacteriales;
                                                                                                                                                                                                        of.
```

Scott, J.R. coli and their

Atlanta,

BCT

13-MAR-1996

```
gene
                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mat_peptide
                            /PIOTEIN_1d="CAAB7762.1"

/db_xref="GI:897728"

/db_xref="GI:897728"

/db_xref="GI:897728"

/db_xref="GI:897728"

/db_xref="GI:897728"

/db_xref="SPTREMBL:Q47118"

/db_xref="SPTREMBL:Q47118"

/translation="NAAFNKITYFILFIPGLCFGTNGLESKKNIPEEFIDLWMEQDEL
/translation="NAAFNKITYFILFIPGLEKINVQEKKEDLRSLLLQSYSRNGNM
SCNGFDEKEYSCNYIRDTVNVIVDEENNELALFIGASFLSVQAQDNIYYQKNINSEK
SFINGTINFSESEGKKSLSLKGVGAQGTENSYLVFGWDAIYNSSKKYTYKNQSINN
IYYRYDFDKKYYYQLGRMDRSDLSSASGNFNFNMLPLDIDGFGIGTTGSYIKNIEK
SISGPVTVMLTRESRVEAFRNEELLGVWYLNGGINDLDTSRLPDGSYDLTLKIFEQDI
LVREEKVPFNKGGASFGDMQMDVFAGFLOUTUNNNDSYIEGTNKTGINAGIRTPVTR
NLSFLQGAIIDNEXYYEAGWNRSGFLDGVLSGNFSFLYGDGARMYQNGISYDGEN
LSFTRNDKSVDNCSHNYSAGWSGCYESYSFSLSVPVSGWTTTLGYNTINBEAVHKYDY
TPEXYFFSKXYGVSKRWQLTSSSSYKWNDYHIPFOVER
TPEXYFFSKXYXGVSKRWQLTSSSSYKWNDYHJPTIGYYETIGFXRDQSRWSEGGGYFSLSFT
                                                                                                                                                                                                                                                                                                                               1836. .4436
/gene="cotC"
1836. .4436
/gene="cotC"
/citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cotA"
1255. 1767
/gene="cotA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="cotB"
/citation=[1]
553. .1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/product="CotB"
/product="CotB"
/product="CaA87760.1"
/protein_id="CaA87760.1"
/protein_id="CaA87760.1"
/db_xref="GI:897726"
/db_xref="SPTREMBL:Q47116"
/db_xref="SPTREMBL:Q47116"
/translation="MKILLEVILFENVFAASANFMVYPISKDIQSGGSETIKVFSKSK
/translation="MKILLEVILFENVFAASANFMVYPISKDIQSGGSETIKVFSKSK
/VYNIKITKRVINFGTKEEQEVDIKKMDGGLLVTPAKVVLPAASKSITLTEINKKE
QEEVYRVYFESVKPGQQDDIEEKNGRVNTDLSVNITYAALIRTSPENPQRKLDVSIES
NNVWIKNTGNIRLGIKDVFLCDTTSINDKCAKFSYNRNLYPDMSVDTKLGKKGFSYAV
IDTKDDRNENGGELINIKLP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="cotA"
/citation=[1]
/evidence=experimental
1324. .1764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RVKENSAINAGYSYNYVKHKNATHEAFLDGRITTNTFGYSELGSRINTNKNNTEAGVT
GRVKNRFGDLNGSLNVNKSKTSGKMTHSMSANYNSSFAITGDSVYWGGDASGLTKLSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   499.
                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
/product="CotC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="CotA"
/function="major pilin subunit for CS2 pili"
/citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="cotA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVSIVLTQEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="CotA"
/protein_id="CAA87761.1"
/db_xref="GI:897727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /citation=[1]
1255. .1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /citation=[1]
1241. .1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="cotB"
/product="CotB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                               /citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                  .1824
                        Qy
                                                                                                     Š
                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                             닭
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
4937
                                                                   4877
                                                                                                                                               4817
                                                                                                                                                                                                                    4757
                                                                                                                                                                                                                                                                                             4703
                                                                                                                                                                                                                                                                                                                                                                        4643
                                    478
                                                                                                         418
                                                                                                                                                                                367
                                                                                                                                                                                                                                                         307
                                                                                                                                                                                                                                                                                                                                 247
                                                                                                                                                                                                                                                                                                                                                                                                          187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4505.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4451.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4451.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4451.
```

```
ATATTTACTGAAAAGAAAAGTCTGGCCAGAAAAACATTAAAACTTAAAAGGATATAAGAGA 4816
                                                                                                                                                                                                                                                                                       CAATTTACGGAAAAAAGAAGTTTAATAAAAAAGAGCTACAAATTAAAGGCTATAAACAA
                                                                                                                                                                                                                                                                                                                                  TGTCCGACAGGAGAAAACTCCA-----AATCCTCTCAAGGGGAGACTAATATTAAGCTA
                                                                                                                                                                                                                                                                                                                                                        TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTA 306
                                                                                                                                                                                                                                                                                                                                                                                                                   TCTCTTTTTGACAGGATGACGTTTTTATGTATGTCATCAACAGATGCATCTAAAGGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTCTCACAATACACTTAATGGAGCA
                                          GGCGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA 537
                                                                                 ACTGTTAAATGTGTAGGTTCACTTCACAAGAGGAGTAGATTTCACTTTATATATCCCACAA 4936
                                                                                                                                                                TTTTTATATGAATCAGATAGATGCATTCATTATGTCGATAAAATGAATCTCAATTCTCAT
                                                                                                                                                                                                        TTATTGTTCAAAAGTGTTAACTGC-----CCATCCGGCCTAACACTTAACTCAGCT 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="Caa87763.1"
//db_xref="GI:897729"
//db_xref="GI:897729"
//db_xref="SFTREMBL:Q47119"
//db_xref="SFTREMBL:Q47119"
//db_xref="MKKVIFVLSMFLCSQVYGQSWHTNVEAGSINKTESIGPIDRSAA
ASYPAHYIFHEHVAGYNKDHSLFDRMTFLCMSSTDASKGACPTGENSKSSQGETNIKL
IFTEKKSLARKTLNLKGYKRFLYESDRCIHYVDKMILMSHTVKCVGSFTRGVDFTLYI
PQGELDGLLTGGIWEAFLELRVKRYDYNHGYKVNITVDLTDKGNIQWTFAFEHSDP
RIDLNLRPEGNEKYSGSNVLEWCLYDGYSTHSQSIEMÆFQDDSQTGNNEYNLIKTGEP
LKKLYYKLSLLLGGREFYPNNGEAFTINDTSSLFINMNRIKSVSLPQISIPVLCWPAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GVVNVRSDDKSKELIKISGSSYGNYILGSNDRSFIPVSALMPSNLTIEEIQSNDKNIT
VQALSKNDFFILPGNVFPIDVTANVTVSYIGRALDDKGNPLSNAHILDVHGVRLDEDG
GFSFETSAQKKSLFLLKDKDIYSCDVKKYDLRSGVLFTGDLICEHSGIERLGKDLVNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="cotC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4505. .5542
/gene="cotD"
/product="CotD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /citation=[1]
4505. .5542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LTFMSELNNPEAGEYSGILNVTFTPSSSSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="cotD"
/note="ttg start codon"
/citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="cotC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /citation=[1]
874 c 1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="cotD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="cotD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /citation=[1]
1451. .5545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="CotC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .5545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 298.8;
Pred. No. 4e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4e-54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 5798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                       366
                                                                                                                                                                                                                                                                                                                                  4756
                                                                                                                                                                                                                                                                                                                                                                                                                   4702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           186
                                                                                                                                                                4876
                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4642
    4996
                                                                                                                         477
```

```
γΩ
                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
AX741415
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                    TITLE
                                                                                           Sg
                                                                                                                    gene
                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  898
                                                                                                                                                                                                                                                                                                                                                               AX741415
Sequence 5
AX741415
AX741415.1
                                                                                                                                                                                                                                                                                                      Escherichia coli
Escherichia coli
Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                         Acambis
                                                                                                                                                                                                                                    Bacterial vaccine
                                                                                                                                                                                                                                                   Darsley,M.J.
                                                                                                                                                                                                                                                               Turner,A.K., Greenwood,J., Stephens,J.C.,
                                                                                                                                                                                                                                                                                           Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGATTAGTATTCCAGTACTATGCTGGCCAGCAAACTTGACATTTATGTCAGAGCTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTCTGTA 5544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACACTCTA 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATCCAGAAGCGGGTGAGTATTCAGGAATACTTAACGTAACATTTACTCCTAGTAGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATCCCGAGGCTGGACAATATATAGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAA 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTAATGATACTTCGTCATTGTTTATAAACTGGAATCGTATTAAGTCTGTATCCTTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAACTTTCTCTTCTTTTAGGAGGACGAGAGTTTTATCCAAATAATGGAGAGGCTTTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGGAAATAATGAATATAATCTTATAAAAACTGGAGAGCCATTAAAAAAATTGCCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAATCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATGATGGCTATAGTACACATAGTCAAAGTATAGAAATGAGGTTTCAGGATGACTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATTTACGTCCTGAAGGTAATGGTAAATATTCTGGTAGTAACGTGCTTGAGATGTGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACAAAGGAAATATTCAGGTCTGGACACCAAAGTTTCATAGCGATCCTAGAATTGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAAAGGCATTACGACTATAATCATGGTACTTACAAAGTTAATATCACAGTTGATTTGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATTATCACTATTAAATTAACT
                                                                                                                                                                                                      WO 03022306-A 5 20-MAR-2003;
Research Limited (GB)
/gene="cotb"
/codon_start=1
/codon_start=1
/transl_tabl=11
/protein_id="cAD90909.1"
/db_xref="GI:30524209"
/translation="MKILLFVILFFNVFAASANEMVYPISKDIQSGGSETIKVFSKSK
                                                                                           /gene=
                                                                                                                      499.
                                                                                                                                /mol_type="genomic DNA"
/db_xref="taxon:562"
                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                              organism="Escherichia"
                                                                                                                                                                                                                                                                                                                                                                                           from Patent W003022306
                                                                                                                                                                                                                                                                                                                                                                  GI:30524208
                                                                                                                      .1215
                                                                                                        cotB"
                                                                                                                                                                                                                                                                                           Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                           5798
                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                               Beavis, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                         Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                           PAT
                                                                                                                                                                                                                                                                                                                                                                                                          10-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                597
                          δÃ
                                                             밁
                                                                                     δÃ
                                                                                                                   밁
                                                                                                                                             Š
     밁
                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                             4643
                                247
                                                                                        187
                                                                                                                                               127
                                                                                                                                                                           566;
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                  ω
```

```
ACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTCTCACAATACACTTAATGGAGCA
                                                                                                                                                                                                                                                                                                                           GAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCAT
                                                                   TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAACATTA
                                                                                                                                          TCTCTTTTTGACAGGATGACGTTTTTATGTATGTCATCAACAGATGCATCTAAAGGTGCA
                                                                                                                                                                                                                                                                                         GCATCGTATCCTGCTCATTATATATTTCATGAACATGTTGCTGGTTACAATAAAGATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /COGO_Start=1
//transl_table=11
//transl_table=11
//transl_table=11
//protein_id="CLD90911.1"
//protein_id="CLD90911.1"
//db_xref="GI:30524211"
//db_xref="GI:30524211"
//translation="MRAFNKITVFILFIPGLCFGTNGLESKKNIPEEFIDLWMEODEL
//translation="MRAFNKITVFILFIPGLCFGTNGLESKKNIPEEFIDLWMEODEL
//translation="MRAFNKITVFILFIPGLCFGTNGEKEDLRSLLLOSYSRNONN
SCNGFPEKEYSCNYIRTDTVNVVDEENNELLLFIGASFLSVQAQDNIYYQKNINSEK
SCNGFPEKEYSCNYIRTDTVNVVVDEENNELLLFIGASFLSVQAQDNIYYQKNINSEK
AFIHSQTINFSEEGYKSLSLKGVGAQGLTENSYLVFGMDAIYNSSRKYTYKNOSINN
IYYRVDFDKKYYQLGRMDRSDLSSASSGNFNENMLFLDDIDGFQTGTTGSYIKNIEK
SISSPTYMLTRESKYEAFRNEELLGYWYLNSGLNDLDTSRLPDGSTGTNGKTGINAGIRTPVTR
IVYREXTYPTHINGASFGDMQNDYFAQAANIVNNDSYLEGTNAKTGINAGNYCNISYTDGFN
LSFYRNDKSVDNCSHNYSAGWSGCYESYSFSLSVPVSGMTTLGYNHTNNEAVHKYDY
TPEYFFSKKYGGVSKRWOLTSSSSYKWNDYHJFTGYYSELGSRINTNNNNTEAGVT
GRVKNRFGDLNGSLNVKKKNATHEAFIDGRITTNTFGYSELGSRINTNNNNTEAGVT
GRVKNRFGDLNGSLNVKKKTSKTSKMTHAMSANTNSSFALTGDSYWGGDASGLTKLSG
GVVNVRSDDKSKELIKISGSSYGNYILGSNDRFFIPGSAUGTSLSTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
/protein_id="Cap90912.1"
/protein_id="Cap90912.1"
/protein_id="Cap90912.1"
/db_xref="GI:30524212"
/translation="MKKVIFVLZ#FLCSQVYGQS#HTNVEAGSINKTESIGPIDRSAA
/Sypahyif=HelwAGYKKIFULYESDRCIHYUDKMNLNSHTVKCVGSFTRGVDFTLYI
IFTEKKSLARRTLNLKGYKRFLYESDRCIHYUDKMNLNSHTVKCVGSFTRGVDFTLYI
PGGEIDGLTTGGIWEATIELRYKRHYDYMHGTYKVNLITYDLTNGKNIQY#TPKEHSDP
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDDSQTNNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDDSQTGNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDDSQTGNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDDSQTGNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDSQTGNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSTHSQSIEMRFQDSQTGNEYLLKTGEF
RIDLNLRPEGNGXYSGSNULEMCLYDOYSGHFINWNRIKSVSLPQISIPVLCWPAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LTEMSELNNPEAGEYSGILNVTFTPSSSSL®
874 c 1221 g 1799 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GFSFETSAQKKSLFLLKDKDIYSCDVKKYDLRSGVLFTGDLICEHSGIERLGKDLVNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="mklnkiigalvlsstfvsmgasaaeknitvtasvdptidlmqsd
GTALPSAVNIAYLPGEKRFESARINTQVHTNNKTKGIQIKLTNDNVVMTNLSDPSKTI
PLEVSFAGTKLSTAATSITADQLNFGAAGVETVSATKELVINAGSTQQTNIVAGNYQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="cotA"
1255. .1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DVQYIKIYTKRVINPGTKEEQEVDIKNWDGGLIVTPAKVVLPAGASKSIRLTEINKKE
QEEVYRVYFESVKPGQQDDIEEKNGRVNTDLSVNIIYAALIRTSPENPQRKLDVSIES
NNVWIKNTGNIRLGIKDVFLCDTTSINDKCAKFSYNRNLYPDMSVDTKLGKKGFSYAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRVKQLLAYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VQALSKNDFFILPGNVFPIDVTANVTVSYIGRALDDKGNPLSNAHILDVHGVRLDEDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="cotC"
1836. .4436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LVSIVLTQEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=11
/protein_id="CAD90910.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDTKDDRNENSGELINIKLP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4451. .5545
/gene="cotD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="cotC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="cotA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="GI:30524210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .4436
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 298.8; Lb ., ored. No. 4e-54; hes 387;
· AATCCTCTCAAGGGGAGACTAATATTAAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5798;
                                                                                                                                                                                                                                                                                                                                                                                                                                    15;
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
   4756
                                                                                                                                                                                                                                                                                     4642
                                                                       306
                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                    2
```

224

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                           ACCESSION
VERSION
                                                                                                                                                                                                        RESULT 11
AX083744/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                            þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                             LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                   TITLE
JOURNAL
                                                 AUTHORS
                                                                                                                                                                                                                                                                                                    1078
                                                                                                                                                                                                                                                                                                                                                                                            5417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4817
                                                                                                                                                           AX083744
Sequence 22
AX083744
Regulation of embryonic transcription Patent: WO 0111061-A 22 15-FEB-2001; UNIVERSITY OF BRITISH COLUMBIA (CA)
                                                                             synthetic construct synthetic construct artificial sequences
                                                 Kunst, L. and Clemens, S.
                                                                                                                                             AX083744.1
                                                                                                                                                                                                                                                                                                                                                 AATCCCGAGGCTGGACAATATATGGGGTAATATTAATGTTACTTTCACACCCAAGTAGTCAA 1077
                                                                                                                                                                                                                                                                                                                                                                                                            GAAATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTT
                                                                                                                                                                                                                                                                                                                                                                                            CAGATTAGTATTCCAGTACTATGCTGGCCAGCAAACTTGACATTTATGTCAGAGCTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTAATGATACTTCGTCATTGTTTATAAACTGGAATCGTATTAAGTCTGTATCCTTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAACTTTCTTCTTTAGGAGGACGAGAGTTTTATCCAAATAATGGAGAGGCTTTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAATCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATTTACGTCCTGAAGGTAATGGTAAATATTCTGGTAGTAACGTGCTTGAGATGTGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACAAAGGAAATATTCAGGTCTGGACACCAAAGTTTCATAGCGATCCTAGAATTGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAGGCATTACGACTATAATCATGGTACTTACAAAGTTAATATCACAGTTGATTTGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTGAAATTGATGGGCTTCTAACTGGAGGTATATGGGAGGCAACACTAGAGTTACGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTTCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTATTGTTCAAAAGTGTTAACTGC------CCATCCGGCCTAACACTTAACTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAATTTACGGAAAAAGAAGTTTAATAAAAAGGGAGCTACAAATTAAAGGCTATAAACAA
                                                                                                                                                                                                                                                                        AGTCTGTA
                                                                                                                                                                                                                                                                                                    ACACTCTA 1085
                                                                                                                                                                                                                                                                                                                               AATCCAGAAGCGGGTGAGTATTCAGGAATACTTAACGTAACATTTACTCCTAGTAGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTTTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACAGGAAATAATGAATATAATCTTATAAAAACTGGAGAGCCATTAAAAAAATTGCCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGATGGCTATAGTACACATAGTCAAAGTATAGAAATGAGGTTTCAGGATGACTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTGTTAAATGTGTAGGTTCATTCACAAGAGGAGTAGATTTCACTTTATATATCCCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTTTATATGAATCAGATAGATGCATTCATTATGTCGATAAAATGAATCTCAATTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATATTTACTGAAAAGAAAAGTCTGGCCAGAAAAACATTAAACTTAAAAGGATATAAGAGA
                                                                                                                                                                                                                                                                        5544
                                                                                                                                                                           from
                                                                                                                                              GI:13185472
                                                                                                                                                                           Patent
                                                                                                                                                                             W00111061.
                                                                                                                                                                                          ďď
                                                                                                                                                                                          DNA
                                   'n
                                 plants
                                                                                                                                                                                          linear
                                                                                                                                                                                          PAT
                                                                                                                                                                                          28-FEB-2001
                                                                                                                                                                                                                                                                                                                                 5536
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4936
                                                                                                                                                                                                                                                                                                                                                                                                                         1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      366
                                                             REFERENCE
AUTHORS
                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                     RESULT 12
CEY50E8A
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                          ρy
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 58
 JOURNAL MEDLINE
                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                    12
                                                                                                                                                                                                                                                                                                                             705
                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                         645
                                                                                                                                                                                                                                                                                                                                                                                                                       216
                                                                                                                                                                                                                                                                                                                                                                                                                                                      585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      165
                                                                                                                                                                                                                                                                                                  96
Genome sequence of the nematode C. elegans: Investigating biology. The C. elegans Sequen Science 282 (5396), 2012-2018 (1998) 99069613
                                                                                         Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota, Metazoa, Nematoda, Chromadorea, Rhabditida,
Rhabditoidea, Rhabditidae, Peloderinae, Caenorhabditis.
                                                              none
                                                                                                                                                                                       Caenorhabditis elegans AL117200
                                                                                                                                                           HTG.
                                                                                                                                                                        AL117200.2
                                                                                                                                                                                                                       CEY50E8A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h 5.8%;
Similarity 10.6%;
58; Conservative 24
                                                                                                                                                                                                                                                                                                  VSANNTG
                                                                                                                                                                                                                                                                                                                               TGATATG
                                                                                                                                                                                                                                                                                                                                                            HKKGKAAWTNNKTABRDDHBAHVKTYWYWRYDYWCAMCWMNAKAKVRTAMKHMWYYTDRY
                                                                                                                                                                                                                                                                                                                                                                                         TCGCGTCGATCTTAACTTGCGTCCAACTGGTGGGGGGCACATATATTGGAAGAAATTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                         WMDHMNTHCTYGNNTWGSAYBMAAMSMMAAGASNBYTYNWCWRMTYMGKTMTNNNNNNKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACAATACACTTAATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRMMTMRWTMKGDGMTVRKKVKWRDTTCTYVDVWADSWVWWYANWMRCRDVTYTRNNTYC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACAGCATACAGTGAAAGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                       WWVKCRNKYMVSWHYHAMRYBKWABAVGCNNNWKDRMAHHHWCATNNNMWWWYAYMHHM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WYYRTKTVAWCNNRYYYDTAVWTBKRNYKYCYAYBWYYBMYMGKHHWBWWRRABHRSWNM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NNNTDTRYYWWKRWARBTTTVYDSMCNAKSMWRGNNWRAMKMWWAANNDAGAMDHWTYW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGTGAAACAATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KSYAHSYWYWSNNAMWYRRYSARNWS---SMARWTTRNNWWMSGBVRMRWAGTMWWRHWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATATATTCCTGCTGGCGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AMYMRVAWMY SRDTTNTDWMWTSDWBWHWYTVDYTMMRAWNNNNNNWRBCKTTSWMW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTTAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGNNTMWMRRAWKMMNMAWCRRAYCCNNNNNRACVWHKHKMWRWTWKYMWKAACNNNNBK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAAATTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           promoters"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism≃"synthetic co
/mol_type="genomic DNA"
/db_xref="taxon:32630"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="consensus sequence
                                                                                                                                                                        GI:6580305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 63.4; DB 6;
Pred. No. 0.0018;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42 g
                                                                                                                                                                                                     61864 bp
YAC Y50E8A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112 t
                                                                                                                                                                                                     complete sequence.
                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of A.t.,
                              egans: a pla
Sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              832 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1141;
                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L.a., and
                                              platform
                                Consortium
                                                                                                                                                                                                                     VNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ψ
                                                for
                                                                                                                                                                                                                     21-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

97

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
     CDS
                                                           gene
                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
Submitted (06-SEP-1999) Nematode Sequencing Project, Sanger
Institute, Hinxton, Cambridge CBIO ISA, England and Department of
Genetics, Washington University, St. Louis, MO 63110, USA. E-mail:
jes@sanger.ac.uk or rw@nematode.wustl.edu
On Dec 15, 1999 this sequence version replaced gi:5832869.
Coding sequences below are predicted from computer analysis, using
predictions from Genefinder (P. Green, U. Washington), and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMPORTANT: This sequence is NOT necessarily the entire insert of the specified clone. It may be shorter because we only sequence overlapping sections once, or longer because we arrange for a small overlap between neighbouring submissions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [991122 dl1]: Frameshift detected in sequence. Single nucleotide removed from the project.

For a graphical representation of this sequence and its analysis see: http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         neighbouring submissions.

The true left end of clone C48G7 is at 61761 in this sequence. The true right end of clone R08A2 is at 106 in this sequence. The start of this sequence (1...106) overlaps with the end of sequence 298853. The end of this sequence (61761...61864) overlaps with the start of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequencing consortium are that all bases are either sequenced unambiguously on both strands, or on a single strand with both a dye primer and dye terminator reaction, from distinct subclones. Exceptions are indicated by an explicit note.

IMPORTANT: This sequence is not the entire insert of clone v5088A. It may be shorter because we only sequence overlapping sections once, or longer because we arrange for a small overlap between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           name=Y50E8A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Current sequence finishing criteria for the C. elegans genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9851916
The C.elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence Z78061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           available information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases
                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="SPTREMBL:Q9NAF6"
/translation="MMPTIHYTLLMSLSLSIVTARPPGRNDQEKKLTGGEPLELGDYV
DYFEDFFPVLNNSTKLNENYQYEKKKYLTSVAGFPAKMRKML"
complement(3457. .3756)
/gene="Y50B8A.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene_*Y50E8A.1*
Join(1923, .2105,2179, .2256)
                                                  /translation="mrrlgvdapcgvldpkeTvlldvSrdafAFGQeSTNNDRLTvEWTNNPDEAARQFRREGCQGDGMIRRKNSQLSTTHLFNKSVYFPLVFFFLSNKNSFT"
join(4673. 4783,5619. .5699,5756. .5833,5909. .6094)
                                                                                                                                                                                                                                                                                                                                     complement(3457. .3756)
/gene="Y50E8A.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Caenorhabditis elegans"
/mol_type="genomic DNA"
/strain="Bristol N2"
                                                                                                                                                                                                 /product="Hypothetical protein
/protein_id="CAB55045.1"
/db_xref="GI:5832871"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Hypothetical protein Y50E8A.1"
/protein_id="CAB55044.1"
                    gene-"oig-3"
                                                                                                                                               /db_xref="SPTREMBL:Q9NAF5"
                                                                                                                                                                         /db_xref="GOA:Q9NAF5"
                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                /standard_name="Y50E8A.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="GI:5832870"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /standard_name="Y50E8A.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         join(1923. .2105,2179. .2256)
/gene="Y50E8A.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /chromosome="V"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ៩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .61864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequencing Consortium o 61864)
.4783,5619. .5699,5756.
                                                                                                                                                                                                                                                             Y50E8A.2"
.6094)
                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdC
```

```
Onote-"contains similarity to Pfam domain: PF00735 (Cell division protein), Score=415.1, E-value=2.1e-121, N=1 cDNA EST yk109f1.5 comes from this gene cDNA EST yk21f2.3 comes from this gene cDNA EST yk41ff2.3 comes from this gene cDNA EST yk41f2.5 comes from this gene cDNA EST yk41f2.5 comes from this gene cDNA EST yk41f2.5 comes from this gene cDNA EST yk510f2.3 comes from this gene cDNA EST yk510f2.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="SUTREMBL:Q814C9"
/translation="MSSETILYTASALLFIFLLVLLTTAFLIVRRSKQSSINLQTVVV
/translation="MSSETILYTASALLFIFLLVLLTTAFLIVRRSKQSSINLQTVVV
THENPYVTMTSQSSKMDIPVILPKRFNMSDIEHKHLPPHQPPPVPHHHQNQPPHNNK
TTISSATSSINTTTSKKFTIAAPTAPSPIKSLSDHTGRLMQLNGHVGFDSLPHQLVK
KAVEAGFQFNLMCVGETGTGKTILIESLFNMKLDFEPCNHELKTVELRTCTKDVAEGG
IRVKLRLVETAGFGDQLDKDKSAKVIVDLESQFETVLQEELKFRMLQYFNDSRIHA
CLYFTSPTGHGLKALDLVTLRELKKRUNVIPVIAKSDTTCKDELLRFKKKILSELKSQ
KIDIYTFPTDDETVSTTNKEMNKSVPFAVVGSIDFVKKENGQMVRARQYPMGIVEVEN
ESHCDFVKLREALLRTNVDEMRQRTHESLYENYRRDBLRQMKIGDGETGPKIIEKLAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(join(6492..6734,678092..8173,8224..8363,8412./gene="unc-61"
                                                                                                                                                            complement(join(9824. .9902,9968. 10304. .10469,10683. .10728,10840.
                                                                                                                                                                                                                                                                                                                                                                                                 ETVSTTNKEMNKSVPFAVVGSIDFVKKENGQMVRARQYPWGIVEVENESHCDFVKLRE
ALLRTNVDEMRQRTHESLYENYRRDRLRQMKIGDGETGPKIIEKLAQKHREHQDEFSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="Sptrembl:Q9u277"
/translation="MSDIEMKLQHLPPHQPPPVPHHHQNQPTHNNTTISSATSSIN
/translation="MSDIEMKLQHLPPHQPPPVPHHHQNQPTHNNTTISSATSSIN
/translation="MSDIEMKLQHLPPHQRLMGHVGFDSLPHQLVKKAVEAGFQPNL
TTTTSKKPTIAAPTAPSILSLENKKLDFEBCNHELKTVELKTCTKDVAEGGIRVKLRLVETA
MCVGETGTGKTTLIESLFNKKLDFEBCNHELKTVELKTCTKDVAEGGIRVKLRLVETA
GFGDQLDKDKSAKVIVDYLESQFETYLQEELKPRRMLQYFNDSRIHACLYFISPTGHG
LKALDLVTLRELAKRVNVIPYIAKSDTTCKDELLRFKAKILSELKSQKIDIYTFPTDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KHREHQDEFSRRELTLREEFQKKLDVTEGDMRKVEEGLAAREREVHENYNREASKLDM
EIRQLTEERMKLMTKVSKKLRK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="0. elegans UNC-61 protein (corresponding sequence Y50E8A.4a)"
/protein_id="CAD54172.1"
/db_xref="GI:24817603"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /standard_name="Y50E8A.4a"
/note="cDNA EST yk733g2.5 comes
cDNA EST yk733g2.3 comes from th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(join(6492. .6734,6791. .7280,7600. .7740, 8092. .8173,8224. .8363,8412. .8506,8622. .8789,8840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="SPTREMBL:Q9NAF4"
/translation="MSYSPPQPPQRQYSSTLNVDCVDGVYRSQQQVSPLTKQVNHLAY
EIPKKKYANNPWNYAPEELKVFGDLKVHIGGKAVFDCVLLGSPRPRVCWLFNEDKLRF
                                                                                                                                                                                                                              10304. .10469,10683. .10728,10840.
/gene="Y50E8A.5"
                                                                                                                                                                                                                                                                                                                                                               RELTLREEFQKKLDVTEGDMRKVEEGLAAREREVHENYNREASKLDMEIRQLTEERMK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence Y50E8A.4b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9069.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(6492. .9248)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SDVIIEDTADVCRLTIPYVQMHHFGTFTVLCENEVGRATAQAELLPLYE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="C. elegans OIG-3 protein (corresponding sequence
Y50E8A.3)"
/product="Hypothetical protein Y50E8A.5"
/protein_id="CAB55048.1"
                                                                                                                                                                                                                                                                                                                                      LMTKVSKKLRK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="CAB60583.1"
/db_xref="GI:6425352"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="C. elegans UNC-61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="CAB55046.1"
/db_xref="GI:5832872"
                                                                                                                                    /gene="Y50E8A.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /standard_name-"Y50E8A.4b"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="unc-61"
                                                                     'codon_start=1
                                                                                                 'standard_name="Y50E8A.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="unc-61"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard_name="Y50E8A.3"
                                                                                                                                                                                                                                                                                                lement(join(9824.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .9248)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .6734,6791. .7280,7600. .7740,
53,8412. .8506,8622. .8795,8840.
                                                                                                                                                                                                                                                                                                .9902,9968.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein (corresponding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             from this gene
                                                                                                                                                                   .10102,10156.
                                                                                                                                                                                                                                                             .10102,10156.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                .10258,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 8893,
```

```
AF253047
                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Sim
Matches 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                      30545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30305
                                                                                                                                                                                                                                                                             30485
                                                                                                                                                                                                                                                                                                                                                                                  30425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         290 AAACAAATATAACATTTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAA 349
AF253047 5230
Candida albicans DNA primase
                                                                                                                                                                      ATTAAAATTAAAATTAAAAT 30564
                                                                                                                                                                                                                                                                                                                         TAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTA 589
                                                                                                                                                                                                                                                                                                                                                                               ATTTTACTCTGTGGCTTCCCACCAAATTTTACTCTGTGGCTTCCCCACTGTATTTTA 30424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTANAATTAAAATTAAAAGTAAAATTAAAATTAAAATTTTTCTCTGTGGCTTCCCACCAA 30364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTA 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATTAACTGATAAGGGAAAT 609
                                                                                                                                                                                                                                                                        TTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGT 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATA 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FPVIGHRLHPDFPFLEAEVRYAVKĒYĀRĪFADĪILĀRRĪRISLLDĀRĀĀROULPRIVĀ
MAEELKWSPSEQIFYFDEGMKFLKVENGSVQSWKKEHSGVELQSLEDQNVNIPQDVLD
DVVMEABEGNKVYSLEDLQKIFMDSKNGCTKGRRLIDHLGNLKKCESRL"
Complement(join(20700. .20895,21569. .21768,21816. .21974,
22535. .22787,22833. .23052,23101. .23203,23647. .23721))
/gene="Y50E8A.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLPVNQGDSIVSDDKCLVENKLKKDGDSCAGYCMTINITRTDDEAAGKTIAIVRDCQV
RTRNLEDLLESDAPLCTSYEKLVNRRNVNITTCKGHYCNGLGFAEATRHSKALELP
VNSIDPKESGGPCTCRKKKNERESYEMGKKGEDVEENS"
complement(join(13598. 13687,13733. 13840,14157. .14744,
15001. 15531,15580. .15808,15867. .16342))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGPFNDHIREMADETRNKIIVGSSGIHLTVAKYFCPGNAGLIVPKSSDGRVIFAFPW
ENVTIVGTTDDPTEPSHSPTVTEKEIQYILKEMNRAFEKEYEIKREDVTSIWSGIRGL
VQDPKRQKEHNSLARGHLVDVGPTGLITIAGGKLTTFRHMAEETVNKLLDINKILEAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="Y50EBA.6"
complement()oin(13598. .13687,13733. .13840,14157. .14744,
15001. .15531,15580. .15808,15867. .16342))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KSSKLLHGGVKYLETALKEFDYEHYQIVQEGLNERLNIMKSAPFLSQTFPVLVPTYKW
WQKIYYWGGVKVYDFLAGKNVLKPSKFYSKEEAIEICPTIRQEGLKGAMLYYDGQGND
ARLVLVVALTAIRNGAKCVNHTECIGLLKDSYGKVNGALVKDHISGETYEIHSKVVVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="SPTREMBL:Q9nAF3"
/translation="MFLRSISILVVLYTYRLRTADGYMCHKCASTDAVWSINKAVGPT
MHVKMQYSISVDSINIILLISLEIITPYAHGSRHAENGPVTVTRCQRGETQNMNWVKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PCVTRGMMFEGAHNYTSMLYRTISQNYGIEEQVATHLCQTYGDKVYEVLKLCKSTGQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MISRLLLQKSGILALGATAASTVAVWQTRTGFSKIREAPTGSTP
GSLPTRESIIESLKTEKRFDVLVIGGGSAGAGVALDAQTRGLKTAMVEYGDYCSGTSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="Hypothetical protein Y50E8A.6"
/protein_id="CAB55049.1"
/db_xref="GI:5832875"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="contains similarity to Pfam domain: pF01224
(FAD-dependent glycerol-3-phosphate dehydrogenase),
score=528.5, E-value=1.6e-155, N=1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="GI:5832874"
/db_xref="GOA:Q9NAF3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="Y50E8A.6"
/standard_name="Y50E8A.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="SPTREMBL:Q9NAF2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="GOA:Q9NAF2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.3%;
48.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 57.6; DB Pred. No. 0.019;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
        ) bp
large
          subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 61864;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
     linear
Pri2p (
     r PLN 13-NOV-2002 (pri2) gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
```

Ş

밁

5

밁 Ş 밁 Q 밁 Ş 밁

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (06-APR-2000) Scriptgen Pharmaceuticals, 610 Lincoln Street, Waltham, MA 02451, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales; mitosporic Saccharomycetales; Candida.

1 (bases 1 to 5230)

Buurman, E.T., Jiang, W., McCoy, M., Averett, D.R., Thompson, C.M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           partial cds; large subunit Cp complex Cdc68p (cdc68) gene, complete cds; and Csolp (cso99) gene, partial cds. AF255047 AF255047.1 GI:12082668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Validation of Cdc68p as a novel antifungal target Arch. Microbiol. 178 (6), 428-436 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Buurman, E.T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Candida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Candida albicans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 5230)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 albicans
                                                                                                                           GEGVILSSIGLRYKSYCSNIARTFLIDPTSEMETNYDFLLQLQKYIVDNLLKDGVPAS
KYYQDTIDYIKKERPDLVNHTTKNCGWLIGMERDSFTILNARTDRKLTTGQIISLT
IGFNNLSNDKNDKNDKTNHQKNKQTYALLLTDTIKITDDSSILLTNYSKDRAAISF
ENDDNETQKENINNNNKREGLSQTSNTTGLKLESTENTAILKSKLRHENTNADDANSE
ENDDNETQKENINNNNKREGLSQTSNTTGLKLESTENTAILKSKLRHENTNADDANSE
KLRQEIQIKLHEKKLLGEGLARFSKADATDADDFKPIFKXYESYKRESQIPNYNDLKI
HIDVKNQTIILPISGRPVPFHINSYKSGSQNBEGDFTYKLHENVPREAGNUTKQEL
PYEDSPONSFLKSITIRSRDRORNUDYKAIQDLKKDSVKREGEKQMADVITQANLI
ELKGSRVKKLNNVFIRPTPDTKKIGGYLGIHENGLKYGSQPGSGSGNFKNDGRVDV
                                                                                                                                                                                                                                                                                                                                                       EHNKQLFIKLLETMTKLDSKYGKILKDKYDGKFIDEWNQILNDNNNNTTNDHALSAVD
LAVTVSQALAVKDSEEFNNTKIASNASVVMMDTFVNDMMIIVDDEKKITNSQLTDQIE
DKIENNKWYLKTKLGKNLLQSIKDFDPEYLEYCYSPIIQSGGDYDLKPSAVSTDKPLI
                                                                          FSNIKHLFFQPCKDELIVLIHCHLKNPIMIGKRKTFDVQFYREASDMAFDETGGRKRK
YRYGDEDELQQEQEERRRKALLDKEFKGFAELIADSSHGMVDLDIPFRELGFQGVPFR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="large
834. .3992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MFRQVKRRTAGRRNFEDSTSTATTTTTTTTTTMEKDSPKYLTPS
ALVASRLSFYDLPPTQEITLEEFETWAIDRLKILIEIESCLARSKTLKEIETSIKPLL
LKYLPLNPTSGGGTVNYEKERMKD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="DNA primase large subunit Pri2p" complement(<1. .379)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:5476"
complement(<1. .>379)
GESDEEEESDEESDFRVSDEDPQDEDEESDDYASEEESDDYSGSDDDGSGGGDDDDSE
                                                      SSVLCVPTRDCLVQLIDPPYLVVTLEEIEIAHLERVQFGLKNFDLVFVFKDFNKPVVH
                                                                                                                                                                                                                                                                                                                                                                                                                                          KSTVLQNWLLGYEFIHTAIYITDKKCIFITSEGKSKHLKHLTNQKPDLVELWIRTKDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=12
/product="large subunit Cp complex Cdc68p"
/protein_id="AAG48574.1"
/db_xref="GI:12082670"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(<1. .>379)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Candida albicans"
/mol_type="genomic DNA"
/strain="1006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <834. .>3992
/gene="cdc68"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="cdc68"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=12
/product="DNA primase large subunit Pri2p"
/protein_id="AnG48573.1"
/db_xref="GI:12082669"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="MSEVNIDAGLFYKRLSIFQKQLTANNIPQALIIVGARSDDNTYK/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Spt16p"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="cdc68"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="pri2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="pri2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="pri2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jiang, W. and Wobbe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subunit Cp complex Cdc68p'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thompson, C.M. and
```

```
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                         AC115594
                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                 TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Duery Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IGIN
                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                           ORGANISM
                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          733 ACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155;
                                                 Sequence and a Nature 418 (68 22092622
                                                                                                                                                                                                                                                                                                                                                 AC115594 2717 25 Dictyostelium discoideum chromosome AX4, complete sequence.
                                                                                                                                  Gloeckner, G., Elchinger, L., Szafranski, K., Pachebat, J., Dear, P., Lehmann, R., Baumgart, C., Parra, G., April, J.F., Guigo, R., Kumpf, K., Tunggal, B., Cox, E., Quail, M.A., Platzer, M., Rosenthal, A. and
                                                                                                                                                                                                                                                    Dictyostelium discoideum Dictyostelium discoideum
                                                                                                                                                                                                       Eukaryota; Mycetozoa; Dictyostellida; Dictyostelium 1 (bases 1 to 29143)
                                                                                                                                                                                                                                                                                                                            AC115594.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACTTTGTCACTTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATATATGGGTAATATTAATGTT 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATTGGAATTACCATTGAGTTTTGAAATTGATGAAATATTAGAAATTCCCGAAATTGAA 5185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAAATCAGTGTTCCG 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTGAAGATTTACTTAATACTTTATCATTAATTTCTTGATAAAATTTTCTTGAAAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATTGCTGACGCAGCT 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTAAAATTGCTGAAATTAATAATGAAAAATAACAAATAAAATATAAATTTTGATCAACA 5005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTAATTGAATGAATTTATACCATTGATTTTTAAAAAAATAAAGAATTTTTTGGTTTATTA 4945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAATCCCGAGGCTGGA 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1921
    Dictyostelium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cso99"
complement(<4198. .>5230)
/gene="cso99"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /trans1_table=12
/product="csolp"
/product="csolp"
/product="csolp"
/product="csolp"
/protein_id="Assets: 1"
/translation="IKYFNITTTTQPIMSSISGISNISSISKLNGNSKFTTLLPISI
/translation="IKYFNITTTTTQPIMSSISGISNISSISKLNGNSKFTTLLPISI
/translation="IKYFNITTTTTTAKEKEENNGGSTSYLEKLINPKPPYTT
EGTPSKLAYHLKKINSYLADIRIFNRLTDSIKYMPWIIDEYHAFTNTNSPTSIFKFDR
FINLLQSLNCLYLEILENLGNLTDHDWIGTGNNEWWCIETYIWCCRYWGYYLLIEIME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="Cso1p"
complement(4198.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IIRTPMTKWSNNKQWQINLFKNVIQLPLVLHWSLRDGCLTPFWVGLCGSGASWWNFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(<4198. .>5230)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SGEDWDALERKAAKADRNSGFD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cso99"
                                                                    nd analysis of (6893), 79-85
                                                                                                                                                                                                                                                                                                                            GI:28828945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47.88;
       Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 53.6; DB Pred. No. 0.19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     819 g
                                                                       chromosome 2 of Dictyostelium discoideum (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
  Sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .>5230)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1788 t
                                                                                                                                                                                                                                                                                                                                                                                            DNA
e 2 map
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 8;
       Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169;
                                                                                                                                                                                                                                                                                                                                                                                            linear INV 1:
4071862-4101005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 5230;
                                                                                                                                                                           Pachebat, J., Dear, P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                 INV 12-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (12-MAR-2003) Genome Analysis, Institute of Mole Biotechnology, Beutenberstr. 11, Jena 07745, Germany On Mar 4, 2003 this sequence version replaced gi:1957001. CDS predictions from GeneID do not necessarily reflect tru Further Information is available from IMB Jena, Department
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (http://genome.imb-jena.de/dictyostelium/)
and the Univerity Colonge, Institute for Biochemistry
(http://www.uni-koeln.de/dictyostelium/project.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genome Analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission Submitted (12-MAR-2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baumgart,C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Blotechnology,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (04-MAR-2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (21-MAR-2002) Genome Analysis, Institute of Molecular Biotechnology, Beutenberstr. 11, Jena 07745, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Baumgart,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Agency :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases
                                                                                                                                                                                                /product="similar to Ralstonia solanacearum (Pseudomonas solanacearum). Probable alcohol dehydrogenase (ADH-HT) oxidoreductase protein (EC 1.1.1.1)"
/protein_id="AAO51530.1"
/protein_id="AAO51530.1"
/db_xref="GI:28828946"
/db_xref="GI:28828946"
/translation="MRAAVEROKGGDLEIVEVPVPEEKOGWVRIKVHSCGVCHSDNAC KYGNFGNSYPRIPGHEVFGEIEKLGEGVDPNYFKIGKFVGVGWFGGNHCGKCRECLND OMIFCKESLICGITYDGYAEYMVAPSDSLAFVPEGNHAEETRALLCAGITYENSFRN ONIKVGSLVGVGGLGGIGHLAIOFCKKMGYEVIAMSSDQXEKLARELGAAHYVNISK DGWIDQWKEIGSVQCILLTAPSSSIVQSSLDALGVNGKLVLLAILPEPFNANSITLIG GMKSIGWSSGDSRDAEQTLNFANKNQVKAMIKTFPLENVNEALLKIADARFRHYVKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Deutsche Forschungsgemeinschaft (DFG).
/product="similar to Corynebacterium glutamicum (Brevibacterium flavum). Zn-dependent alcohol dehydrogenases (EC 1.1.1.1)"
/protein_id="AAO51531.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="GeneID exon scores (in order of location
9.13, 15.24, 82.27 - GSCJ_ID dd_03366"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DKPIDDEGVARIALEYKEYQVVLERRK"
join(2894. .3032,3129. .3249,3358.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STENGGGGGGVVGNSSQSEVFIPFGVGPRMCVGMGVAKDELYYCASQMFMNFKWSPVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VAITLGWMILFLSNHQDVQQKVYDELINVVGKGNLPALVHRKDTSYLNACIQETMRIR
TAAPLALPRIASEDIKVGGYTIPKGTQVMMSVYGMASDERYWKDPHIFNPERWLSSNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="EHKKRTNGMPPGPFPLPIIGNLHQLGKSPYKSLKSFSDKYGGLT
TIFLGSVPTVLISEPNILREIIIKNNDSIIDKYISDSGLIIGGERNLLFSKGSFWIKY
RKIFSSAMTMAKFNIASRIEQOAISLUNYFGTYANGKOAINPHDYIRKYSLNGVIDY
SFSDSVEYESDTHHIVIRAAEIMEEILATGNPHDYLPFLKPFYTKKRNTLAMAVGQVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    join(<769. .1194,1286. .2293)
/note="GeneID exon scores (in order of location ranges):
39.90, 122.92 - GSCJ_ID dd_00581"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DYCNDAITVHRKTLDHEKPRDLLDLILMEIEKSEEKQFYDDDSLSKCLTDLIVAGHET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="similar to Fundulus heteroclitus (Mummichog). Cytochrome P450 2N1" (protein_id="AAOSI538 1" /db_xref="GI:28828956"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Dictyostelium
/mol_type="genomic DNA"
/strain="AX4"
                                                                                                                                       /note-"GeneID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /map="4071862-4101005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1
to
                                                                                          codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'db_xref="taxon:44689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .29143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Beutenberstr.
29143)
                                                                                                        .5233,5445. .5565,5640. .6387)
[D exon scores (in order of location, 58.39 - GSCJ_ID dd_00585*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genome An
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Analysis, Institute o
1, Jena 07745, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from IMB Jena, Department
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .4105)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Killifish)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Molecular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Molecular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          true
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ranges):
                                                                                                                                  ranges):
```

CDS

```
/product="similar to Dictyostelium discoideum (Slime ploduct="similar to Dictyostelium discoideum (Slime mold). Protein-tyrosine phosphatase 3 (EC 3.1.3.48) (Protein-tyrosine phosphate phosphohydrolase 3) "/protein_id="aAt02306 2" /protein_id="AAt02306 2" /db_xref="GI:28828950" /db_xref="GI:288289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="G1:28828947"
/translation="medrathagvykkvggnleivkmsipkpkogiikneyprysgh
/translation="medrathagvykkvggnhcgscreclnnnrlecknslitgisi
evlgeieklgdgydpikfkighlygvgmnggnhcgscreclnnnrlecknslitgisi
dggyabyivpsdalapipecknaeerapllcakvyvycslknonfkkslvgvlgig
glghlaiofckkmgyeviamsrgnskektsrelgashfydiakegwyeomkydigsyec
illtapppphlygpebalgynokilliciipepffadsltmilgnksivswyvgnsnd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/product="similar to Bacillus subtilis. Hypothetical 39.0
kDa protein in glnQ-ansR intergenic region"
/protein_id="AAO51533.1"
/db_xref="GI:28828949"
/tanslation="MAIKSUTYVEHDDRWKELFLEEEKGIKEVIFKDYKCKKFNEYDD
TPSSSAAQPPLLTVNVFHCGSTSVPGLKAKPVIDILLVVNGDISELDEMNERFESSNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(9434. .10048)
/note="GeneID exon scores (in order of location
46.94 - GSCJ_ID dd_00587"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IQDTLDFAHKNHIKPIIQTFPLQAVNEVLDKINEANFRSVIKIL" complement(join(6495..7151,7309..8518,8578..8822,8878..9054))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="GeneID
37.10, 68.27,
                                TDSKMINVISKYLTAVPHNDVNFEIYYSELNGIMVHLNYLKMIIFGHFVNDLYYATEN
ILISLSLITSNQNVVNAMALKIGWLIKEGVHLVALLFKLMTILIDENLQVLIIRIAKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dd_00588"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="GeneID exon scores (in order of location ranges):
-2:51, 65.70, 11.49, 142.52, 16.88, 16.56 - GSCJ_ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(join(10359. .10367,10573. .11484,11554. .11751,
11856. .13705,13779. .14106,14175. .14618))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NLKSELASKFPNSIDDYWEGKNLWIKCHEKKSLICHWANRFNNK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QIRGENGIAGRRFFTKRIPNHIWVNMHAFQFDNITDIQRHLTFKDYLIAHPIILDQYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LDEGSNGIVDDNAVEEGGLIIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="similar to
polyhedrosis virus (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (ORF92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exon scores (in order of location 12.46, 6.40 - GSCJ_ID dd_00586"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to Orgyia pseudotsugata multicapsid (OpMNPV). Hypothetical 29.3 kDa protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ranges):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ranges):
                                                                                                                                                                                                                                                                                                                       RESULT 15
AC116979
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
REFERENCE
                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                             ACCESSION
                                                                                                                                           KEYWORDS
                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             448
```

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                      2541 TAATACTTTGCTTCACGGACCAAAAAAATATTAAAAATAAA 2581
                                                                                                                          AX4, complete sequence.
AC116979
AC116979.2 GI:28829703
                                                Dictyostelium discoideum Dictyostelium discoideum
                                                                                                                                                                                                      AC116979 88
Dictyostelium discoideum
Eukaryota; Mycetozoa; Dictyosteliida; Dictyostelium.
1 (bases 1 to 88549)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                       ATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACGATA 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTTAATTCTTGAATATCGTTCTTTTGCCAGACAATAACCGTTGTTGTAATATATTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAAAAAAGAAGT 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTGCAAGTTTATATTATATATCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGT 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAAACGCGGCTTCA 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PDKGAVYYEMLSFSEPSYWLSQLGYPVTRYFQNKFVVDSCNQMLKAVGSNQNVRHV"
join(17987. .18637,18753. .19439)
/note="GeneID exon scores (in order of location ranges):
86.24, 88.94 - GSCU_ID dd_00580"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MFCFRKPSDSDIKQYINDRREEQFAYSNLYGTQDYATKEEYEMD PKYSNFDVDQVKIQLGTGVECFQKAVAALKQWKHFDLDWVDFYFKNTPIAVGETVGIL SKQVGFWILSFARINYLYDGDQEDGSIKFGYSYGTLKOHVEKGEERFVLEWYRDPDGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="similar to Oryza sativa (japonica cultivar-group). Hypothetical protein" /protein_de"AAOS1535.1" /db_xref="GI:28828952"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="GeneID exon scores (in order of location ranges):
55.75 - GSCT_ID dd_00579"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADP-forming, beta subunit,
/protein_id="AAO51536.1"
/db_xref="GI:28828953"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              head cDNA, RIKEN full-length enriched library, clone:C130090E04 product:succinate-Coenzyme A ligase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HNNQMKTVGELKEDYRRLVEESKRTAPKFEHIKGQEKMKDFSLGVD" complement(16288. .16938)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="mvnktiksylcfsnnnvanksiqrtyttynfrtypfyhetkafn
DLLNQKKMKYQvassfsnngdgykgksdyyryrmypnknewkhhdsfdnkpifphitk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="GeneID exon scores (in order of location ranges):
22.36 - GSCJ_ID dd_00578"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QQNQEKEKEKEIDTTTTATTTTATEINNTATETVISPKNSLASPIQDKGEFFRMCIHQ
FQIISVSLLKYLLSVESNSEEFKIIVDCLNSLLNNAQIMKFFEEVLKDQAHSIFLMCL
ILKKKNTNKILESIQLLNPINDFNDYMDWRNYLTTDQSKLTK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="AAO51534.1"
/db_xref="GI:28828951"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(14950. .15396)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'product="similar to Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        48.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 50.6; DB Pred. No. 0.65;
                                                                                                                                                                                                                                         88549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches 144; Indels
                                                                                                                                                                                                                 chromosome
                                                                                                                                                                                                                                    đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     full insert sequence"
                                                                                                                                                                                                           map
                                                                                                                                                                                                              linear INV 12-MAR-2003 6357117-6445670 strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 29143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16 days embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REMARK
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMED
                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
Submitted (05-APR-2002) Genome Analysis, Institute of Molecular
Biotechnology, Beutenberstr. 11, Jena 07745, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (12-MAR-2003) Genome Analysis, Institute of Molecular Biotechnology, Beutenberstr. 11, Jena 07745, Germany On Mar 4, 2003 this sequence version replaced gi:20042934. CDS predictions from GeneID do not necessarily reflect true genes Further Information is available from IMB Jena, Department of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biotechnology, Beutenberstr.
4 (bases 1 to 88549)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (04-MAR-2003) Genome Analysis, Institute of Molecular Biotechnology, Beutenberstr. 11, Jena 07745, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baumgart,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gloeckner, G., Eichinger, L., Szafranski, K., Pachebat, J., Dear, P., Lehmann, R., Baumgart, C., Parra, G., April, J.F., Guigo, R., Kumpf, K., Tunggal, B., Cox, E., Quail, M.A., Platzer, M., Rosenthal, A. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (http://genome.imb-jena.de/dictyostelium/)
and the Univerity Colonge, Institute for Biochemistry I
(http://www.uni-koeln.de/dictyostelium/project.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence and analysis of chromosome 2 of Dictyostelium discoideum Nature 418 (6893), 79-85 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Agency :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genome Analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baumgart,C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dictyostelium Genome (bases 1 to 88549)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Deutsche Forschungsgemeinschaft (DFG).
Location/Qualifiers
                                                                                                                                                                          IKLLNIENITLIKHGSYRNLNKIEEENENDEKEILDRKQYNKENKEFLKKQSEKGNSI
AQCLLGSSYYYGMNGYSYNFEKSLKYLTKSAEQNNAKAYFELFNYYKQQKEDLIKSKY
YLKKSAEFIYEDSIILLEDYYYNGFKTIDNHDDDDGSGENEELNLICQDYFKAFNLF
KIGASLNVDSNSLTKLGICFYYGRGYTIDYNBAYRLFYQSSICDHHQEHNPETTFYYL
GICLFYGKGYLKNQCKGFEYFMKSASLNHYSPALEAYGRCFLNGEGISQNFMQAKLYF
                                                                                                                                                                                                                                                                                                                         /product="hypothetical protein"
/protein_id="AA052220.1"
/protein_id="AA052220.1"
/db_xref="G1:28829705"
/tzanslation="MDCKIHNEKNIMWCLNCTTLCCVDCIEFDHFQHNLKSFKNIDKF
/CTANSlation="MDCKIHNEKNIMWCLNCTTLCCVDCIEFDHFQHNLKSFKNIDKF
HCPTHDEPIIKYCILCNCVICNLCEKTTHFHNNNNNQINITQFFWIPKKKSKSIELEL
NEIDEYNNYNNNINNNNNNNNNNNNNNNNNNNNNENKEINENHNNKNQRSNSPPPLPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="AAC52219.1"
/protein_id="AAC52219.1"
/db_xref="GI:28829704"
/translation="MDQFKVPPPTYAPVAGQTIYGAPSYNNYYMRTPQVSTAPMIYPT
PMMAPPIMTPPIMTQPIMTPPMMYPPIIPSQPFMGPSMVSPIMSPPMIPSQPFMGPSM
PMMAPPIMTPPIMTQPIMTPPMMYPPIIPSQPFMGPSMVSPIMSPPMIPSQPFMGPSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="GeneID exon scores (in order of location ranges):
88.56 - GSCJ_ID dd_01260"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="GeneID exon scores (in order of location ranges):
27.07 - GSCJ_ID dd_01259"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:44689"
/chromosome="2"
                                                                                      NHQKNNYKQEIDNTNIKNIKCKQDSLIDKTFNKVNYLN"
complement(join(4673. .5239,5354. .6118,6205. .6621)
                                                                                                                                                 TTAKSQGSNQDRNIQDVNKIIELNKSIKIKSPNILIEIEKIINENKSFNLEQSCLNYI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /map="6357117-6445670"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Dictyostelium discoideum"
/mol_type="genomic DNA"
                                  /note="GeneID exon scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VSPGYGVTPNLNVPFSTNVKYYD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .88549
   31.78, 100.55 -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequencing Consortium
                           (in order of location ranges):
GSCJ_ID dd_01261"
```

```
/protein_id="AA052223:1"
/protein_id="AA052223:1"
/db_xref="GI:28829710"
/translation="MGICASSMEGEKTNTDINLSIEKERKKKHNEVKLLLLGAGESGK
/translation="MGICASSMEGEKPIITRNILDNMRVLLDGMGRLGMTIDPSNSDAAV
                                                                                                          /product="similar to Dictyostelium discoideum (Slime
mold). Guanine nucleotide-binding protein alpha-2 su
                                                                                                                                                                       join(20802. .21095,21199. .21978)
/note="GeneID exon scores (in order
23.32, 97.21 - GSCJ_ID dd_01856"
                                                                                                                                                                                                                                               GDVQIYCNSNN"
                                                                                                                                                                                                                                                          /translation="MKLLLTLILIIVNYCCFINANKLFVNEVGSYSSNTCDGNPSGIG
FSLAVGQCLPIEGVLSYVINDMPPTTNWFITMGGNGNSFTLKQYDSQDQWCKQDPINT
LQFDNFDTCVEQPAFINVNNSLLADTPVVYSKLTLSQNVPTYAPDSVIIGQYNTNTNV
CTYNDQQFGYSYTSGTVIYNENGISIHVLCNQVNQSMMFKCKESKCGETFIDTYCQMS
                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="GeneID exon scores (in 57.23 - GSCJ_ID dd_02576"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(13151. .13840)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QNDQCVQSFTDTSCDMPPNDLQIYCN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MKLLFGLILLIVNYCYLINANKLFVNFVGTYNSESCSESPIGTG
FSMALGQCVQMGGIFGYVTSSSPEATIMANTILGGDRSTTKCOPHSSDKLCTEDPINT
VKYNKEDTCVQDGSFLTSNUSLLANNINNINNINNINNINNINLYYSKITLISONAPS
YAPNSVIIARYNSSDSVCNYNNQNYGISYSTGSVIYNENGVSVYVVCDQSNQSILFHC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LFKFKEPIDLVQVLAEGGIHMEAT Complement(11849. .12583)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="GeneID exon scores (in order of location ranges):
117.93 - GSCJ_ID dd_03414"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QLLNIRSIYQHFTSKLEEWSANNAEVALTAPQVSKIIKDNYDTLRLKLQENLDQFEPY
VENPKEVLFFKHIIKELINDLRKQINVTNII"
                                                                                        (G alpha 2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="hypothetical protein"
/protein_id="AAM34303.2"
/db_xref="GI:28829708"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="GeneID exon scores
50.22 - GSCJ_ID dd_02577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NNVKNSETEKNIEKLKNINNNNVETNEALISTIKETCKNIPSSSFSSVKNLKRSPPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="AA052222.1"
/db_xref="GI:28829707"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(9007. .10431)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical
/protein_id="aa052221.1
/db_xref="GI:28829706"
                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="AAM34304.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=
                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                    'db_xref="GI:28829709"
                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product≖"similar to Plasmodium falciparum. Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (in order of location ranges):
                                                                                                                                                                                                                                                                                                                                                                                                                                                               order
                                                                                                                                                                                               of location ranges):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                            location ranges):
                                                                                                              subunit
```

CDS

CDS

CDS

Sdo

CDS

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   est Local Sin
atches 128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
35974 TAATAATAATAATAATA 35990
                                                                                                                                         35914
                                                                                                                                                                                                                                                                                                                                                                                                                        35794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35734 TACCCAATTATTAATTGAATGTATGGATTCACCTTCATTTCAACCACTTGATGATGAATC 35793
                                                                    600
                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                            420 TITTAACIGIAATAAAACGCGGCITCAGGIGCAAGITIATAITITATATATATCCIGG 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360 TAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCA 419
                                                                                                                                                                                                                                                                                                                   | CGAACTAAAAAATTTGCCTTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAA 539
                                                                 TAAGGGAAATATTCAGA 616
                                                                                                                                     AAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGA 599
                                                                                                                                                                                                                                                                           TGAATATTATAATGTAAATGATATTAATATTCAAGATTTAATATATCATATAAAATTAAT 35913
                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ASDEGGSCIQŠIAISFIGAYEPSKVQSIFRITURNLIEGDCFKGIYQISIPKYSIRN
YFIEMNDYANNLYKLYPNNEYSGKRYLGSFPYQOYLTEDDIESIGFRUNNIDLSNSNSS
NVLYIKLKOGSISNLYPGFIFKGIDTYEPNNKISGTPRFFKSKMNSASSIYEVFGDI
PARLPTGPISYILNPLEIDSSILYQYFGSPSELNVYSQIADIMGPIALSYNTIGNTTI
PSINEPPNTIGFQILFGDYLNGISQVNITUTSDKTYKOMFKNFTFTEBPSLGKWIOGAFGTW
EIKYGDIPQTFSISELSAIDSMGYITEFPNPTKVPDLKLVELYPSFSIGTGGETPTD
VTPPYMQVYHVNOLNIENYLDRFLEINFTVYDGESGIYIEEPPTIYFINDKVELISKQ
TSYISGTSGGLGFENAIFGVNITLFYLLFGYPNGFLNGIHGILDKFNYLGAIPDIIN
QYNRGNSFINVTIGQSQFFIESFVMDIDGDLLTVNGLKGTLPTGKLRINTMANETNIN
GYNRGNSFINVTIGAGAFGNITTHYLLFGYPNGFLOGGSNEGTTGDCKSKK
HPTSNFYATPSLTANFFPLFNSSSCCKNEGTTVGTYFFFTNAFTTFDFTTFP
HPTSNFYATPSLTANFFPLFNSSSCCKNEGTTVGTYFFTNAFTTFDFTTTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VIVDIDPIVNNSQPEVITPYQHENSGNKFSTLVSIYSLRELGFDGKVENDYIFEMWNY
QYYNNDNHTYFTSIKNKNDLSKRTNITWSIKMYKQLTTTQFASCHITIQPSSIKYFIS
LSDYQPKSNLHTLDLWYTSIETEKIDDACFSSEFGDSSQLSSQYLKIQINDVSYLL
EFIKRALVDTHLVGYLMKVRGNNINSTSNGSSSSQYISIQIPNYKTSVELDPNFSYLL
ESSKLENSTCNKNQSGLTKTQLIGIIIGSTAGFILLLIIVISIVYKKSTTLRININRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(join(27340. .29056,29330. .29490))
/note="GeneID exon scores (in order of location ranges):
218.38, 14.76 - GSCJ_ID dd_01858"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FTIKNIAERQGSYIYPISSFDSTLGFSTIFSRNISYFGPTGVNLPVIQQSYFGTQIQN
SIFISFSKFVIPTTVNYGDIFIDNGFNTLSHFKYPYFINTINAQGGATNTLWVPSSPY
QKSIALEITLQFYFIKYPSPILVGGISGIASFKESIPPVFENIEYFDSVSDDCIVRIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="similar to Rhizobium loti (Mesorhizobium loti).
Dehydrogenase, succinatesemialdehyde dehydrogenase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAO52224.1"
/db_xref="GI:28829711"
/translation="MMRNIHLYIFVSILLSLINGIKSIKVGNGDFSVIDITDSFDDLV
/translation="MMRNIHLYIFVSILLSLINGIKSIKVGNGDFSVIDITDSFDDLV
TLYNDQYSIGGLDENIFWLKVINTVQIGENQKFNLLLTLDNSTTIQFDDFFTLTCKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MIKELTSLQASIVTDCWGELNEDQGKKIKALWTDPGVKQAMRRANEFSTLPDSAPYFF
DSIDRMTSPVIFTDQDILHTRVMTRGYHETNFEIGKIKFRLVDVDVGGQRSERKKHJSC
FDDVTAVVFCVALSEYDLLLYEDNSTNRMLESLRVFSDVCUSWFVNTPIILFLAKKSDL
FREKIKHVDLSETFPBYKGGRDYERASNYIKERFWQINKTEQKAIYSHITCATDTNNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KKFRMKKLSFK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \mathtt{APLQHDNNCSSLVYDQCSLLFVVQADFQRPGIYFLMNMDSNSNLPELVYGNKSYGHWL}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PVNIERELVGQKLFIDKQYKGRYGILVHNIGLEQYLSVPGLENNFISNTFTQGYYDDS
IFYTDVSKNYTIFKPVIKRSASVISQLSIDTIFGSVSTSTKLYLTSFLNSTYFKNPTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    join(22686.
23639. .271)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RVVFEAVKDIIFTQCVMKAGLYS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/product="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="GeneID exon scores (in order of location ranges):
-4.93, 3.57, -1.17, 18.69, 174.64 - GSCJ_ID dd_01857"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.7%;
49.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 50.6; DB 3; Pred. No. 0.56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22743,22820. .22926,23004. .23139,23232. .23558,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          al protein"
1.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 88549;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

CDS

밁 Ş 밁 Ş 밁 Qγ D Ş

В Ş

Search completed: August 25, 2003, 18:03:00 Job time : 3998 secs

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                            Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                              0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nimum DB seq length: 0
ximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
       1086
1086
298.8
49.4
49.4
49.4
49.3
                                                                                                                                                                                                                          Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N_Geneseq_19Jun03:*
1: /SIDS1/gcgdata/ge
2: /SIDS1/gcgdata/ge
3: /SIDS1/gcgdata/ge
                                                                                                                                                                                                                          Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  August 25, 2003, 16:45:38; Search time 343 Seconds (without alignments) 8546.909 Million cell updates/sec
                                                                             100.0
100.0
27.5
4.5
4.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-839-894-9
1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2552756 seqs, 1349719017 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                          D: /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT: *
1. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1990.DAT: *
2. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1991.DAT: *
2. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1991.DAT: *
2. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1991.DAT: *
3. /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1992.DAT: *
3. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1994.DAT: *
4. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1994.DAT: *
5. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1995.DAT: *
5. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT: *
7. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT: *
8. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT: *
9. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT: *
9. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2001.DAT: *
5. SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2001.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atgaataagattttatttat.....caagtagtcaaacactctag 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /SIDS1/gcgdata/geneseq/geneseqn-embl/NA1980.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1981.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1982.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1983.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1983.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1983.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1985.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1987.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1987.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1987.DAT:*
/SIDS1/gcgdata/geneseq/geneseqn-embl/NA1987.DAT:*
                                                                                                                                                                                                                          Length
     1086
7239
5798
10279
10279
10279
10279
9504
5139
                                                                                                                                                                                                                               B
       22444
                                                                                                                                                                                                                            Б
     AAI70763
AAI70780
AAX84848
ABL92277
ABL33591
AAD22328
ABK28407
AAA70139
                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5105512
ETEC CS4 pilus csa
ETEC CS4 pilus csa
CS2 gene cluster.
Chemically treated
Human immune syste
Chemically treated
DNA transcription
Plasmodium falcipa
                                                                                                                                                                                                                          Description
```

0.0

000

OLT 1		54	43	42	41	40	39	38	37	υ (ω (4 1	·w	32	31	30	29	28	27	26	25	24	23	22	2 6	3 6	18	17	16	15	14	13	12	11	10	٥
		39.6	39.6	39.6	39.6	39.8	39.8	39.8	39.8	9 PE	40.2	40.6	40.6	40.8	41	41	41	41	41	41.2	٠		41.6	41.6		۰,	2		'n	43.2	٠			44.8	45)
		3.6	•	3.6	٠	٠	3.7	3.7	3.7	٠		3.7	•								&	œ								4.0		4.0	4 .	<u>.</u> .	<u>ہ</u> د
		15674	7676	6175	494	74962	47108	18878	18878	9929	34688	73334	73334	6534	16842	16842	16842	16842	13420	16228	16228	2365589	15548	6209	19734 2005	641	6137	6137	4985	50000	6080	2036	6971	13133	1176
		24																			N			2 4							23		N I	2 4	S N
	ALIGNMENTS	ABL70513	ABL70409	AAD28373	ABV10021	AAD15256	ABK31510	ABX60429	AAL37441	ABA17906	ABQ67060	ABL34125	ABL92319	ABL32470	ABK31419	AAS61336	ABL70384	AAS46412	ABL32917	AAS61424	ABL70459	ABA90521	ABL34155	AAS28751	ABL33933	ABQ56694	ABL34450	ABL70127	ABQ75107	ABL55643	ABL01846	ABL01847	ABN80061	58	ABT.10866
		Human metastasis a Chemically treated	Chemically treated	Human chemically t		Human phosphatase	Signal transductio	cDNA encoding nove	Human musculoskele		Human angiogenesis	Human immune syste	Chemically treated	Human immune syste	Signal transductio	Human gene regulat	Chemically treated	Tumour suppressor	Human immune syste	Human gene regulat	ο.	Genomic sequence o	Human immune syste	Genomic sequence #	Human immune syste	Human colon cancer		Chemically treated	Anopheles gambiae	AmEPV genome fragm	Drosophila melanog	Drosophila melanog		Signal transductio	Drosonhile molenog

0000000 000000000000000

RRESULT 1
AAAI707A
AC AAI7
AC AAI7
AC AAI7
AC AAI7
AX ETE
AXX VACC
AX ESCI
AX 01-NOV-2001. WO200181582-A2 mat_peptide sig_peptide Escherichia coli. (UYMA-) UNIV MARYLAND BALTIMORE 20-APR-2000; 2000US-198686P 20-APR-2001; 2001WO-US12914 /*tag= a 70..1083 /*tag= b Location/Qualifiers 1..69

CS4 pilus; enterotoxigenic; ETEC; csa operon; csaE gene; fimbrial; vaccine; diarrhoea; antibacterial; antidiarrheic; ds.

ETEC CS4 pilus csaE gene coding region.

18-FEB-2002 (first entry)

AAI70763;

AAI70763 standard; DNA; 1086

ВP

840

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Sin
Matches 1086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present sequence is that of the coding region of the csaE gene of enterotoxigenic Escherichia coli (ETEC) strain El1881A. The csa operon (see AAI70780) was isolated from a genomic library of this strain. Sequencing revealed 5 contiguous genes, csaA-csaE (see AAI70759-63), flanked by 2 insertion elements. The csa operon cencodes the synthesis of ETEC-CS4 pili, and has been expressed in attenuated Shigella strain CVD1204 guaba, constructing the Shigella expressing CS4 fimbriae vaccine strain CVD1204 (pGA2-CS4). The csaE gene encodes a 40 kDa tip associated protein (CsaD, see CsaE gene encodes a 40 kDa tip associated protein (CsaD, see fimbriae. The csa operon, and the csaA-csaE genes, are useful in the production of recombinant CsaA-CsaE polypeptides that are used in claimed immunogenic compositions to prevent ETEC colonisation, and hence to protect against diarrhoea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New nucleotide sequence, useful as immunogenic agent for generating immune response against recombinant product of the operon, comprises csa operon which encodes enterotoxigenic Escherichia coli-CS4 pili
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1086 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Altboum
   601
                                                                            481
                                                                                                   481
                                                                                                                            421
                                                                                                                                                    421
                                                                                                                                                                             361
                                                                                                                                                                                                     361
                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2002-049280/06
)B; AAM50343.
                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31; Page 57-58; 81pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ζ,
                                                                        ATGAATAAGATTTTATTTTATTTTACATTGTTTTCTCTTCAGTACTTTTTACATTTGCT
                                        AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAAACTGAT
                                                                                                                                                                          AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                          AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                           AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                   ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                           GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                                                                                                                                        GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                                                                                                                                                                            AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                         AGTCATACTCTGTATGATAGGATGACTTTTTTTATGTTTGTCTTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                            AGGAACGAATCTTCCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Levine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            366 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 1086; DB 24; 100.0%; Pred. No. 1.4e-254; rative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Barry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            187 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202 G; 331 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                           600
                                                 600
                                                                           540
                                                                                                  540
                                                                                                                          480
                                                                                                                                                   480
                                                                                                                                                                            420
                                                                                                                                                                                                   420
                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                           300
닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
mat_peptide
                        sig_peptide
                                                                                                             sig_peptide
                                                                                                                                                                                                                                                                                                CS4 pilus; enterotoxigenic; ETEC; csaC gene; csaD gene; csaE gene; fantibacterial; antidiarrheic; ds.
                                                                                                                                                                                                                                                                                                                                                    ETEC
                                                                                     mat_peptide
                                                                                                                                                                        mat_peptide
                                                                                                                                                                                                   sig_peptide
                                                                                                                                                                                                                                                                                                                                                                            18-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                           AAI70780
                                                                                                                                                                                                                                                                           Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                    AAI70780;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                 CS4 pilus csa operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCTAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                         /*tag= d
/note= "csaB
1028..1096
/*tag= e
1097..1528
/*tag= f
                                                                                                                                                                                               /*tag= a
/note= "csaA
283..342
                    /*tag= g
/note= "csaC
1589..1654
                                                           /*tag= f
1589..4192
                                                                                                                                                /*tag= c
1028..1531
/*tag= h
1655..4189
                                                                                                                                                                      343..996
                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                     /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                       ٥
                                                                                                                                                                                                                                                                                                                                                                                                                            7239
                                                                                                                                                                                                             (claim 19),
                                                                                                                                                                                                                                                                                                                                                                                                                            ΒP
                                    (claim
                                                                                                                         (claim
                                                                                                                                                                                                                                                                                                             ; csa operon; csaA gene; csaB
fimbrial; vaccine; diarrhoea;
                                    25),
                                                                                                                        22),
                                                                                                                                                                                                              encodes AAM50339"
                                     encodes AAM50341"
                                                                                                                         encodes
                                                                                                                                                                                                                                                                                                                       csaB gene;
```

1080 1080 1020 1020 960 960 900 900

Š

Ş 밁 Ş 멅 Š 밁 Ş ₽ γQ Ş В Š

밁

δõ

밁 Qγ

밁

38888%&

```
õ
                                                        밁
                                                                                    δ
                                                                                                                            밁
                                                                                                                                                              Ωy
                                                                                                                                                                                                           문
                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence is that of the csa operon of enterotoxigenic Escherichia coli (ETEC) strain El1881A. The csa operon was isolated from a genomic library of this strain. Sequencing revealed 5 contiguous genes, csaA-csaE, the coding regions of which are claimed (see AAT/0759-63), flanked by 2 insertion elements. The csa operon encodes 5 proteins (see AAM50339-43) involved in the synthesis of ETEC-CS4 pili. These are the fimbrial structural protein (CsaB), the top associated protein (CsaB), a chaperon-like protein (CsaB), an usher-like protein (CsaC), and a truncated regulatory protein (CsaB). The csa operon has been expressed in attenuated shigella strain CVD1204 guaBA, constructing the Shigella csa operon is useful in the production of recombinant CsaA-CsaE plypeptides that are used in claimed immunogenic compositions to
                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New nucleotide sequence, useful as immunogenic agent for generating immune response against recombinant product of the operon, comprises csa operon which encodes enterotoxigenic Escherichia coli-CS4 pili
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure; Page 63-70; 81pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Altboum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 7239 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UYMA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-APR-2000; 2000US-198686P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200181582-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sig_peptide
                                                                                                                                    4316
                                                                                                                                                                                                                 4256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2002-049280/06.
DB; AAM50339, AZ
                                                                                                                                                                                                                                                                                                                                                                      1086;
                    241
                                                                                              181
                                                                                                                                                                         121
                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UNIV MARYLAND BALTIMORE.
                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                         AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTCTCACAATACACTTAAT
                                                                                                                                                                                                                                 GTATCGGCAGATAAAATTCCCCGGAGATGAAAGGCATAACTAATATTTTTGGCCCGCGTGAC
                  GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA
                                                                                                                                                                         AGGAACGAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAA
                                                                                                                                                                                                               GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Levine MM,
                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  colonisation, and hence to protect against diarrhoea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001WO-US12914.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
4196..5
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "saE (claim 31), encodes AAM50343"
4196.4264
/*tag= k
4265..5278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (5790..6119)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note- "(claim 28) csaD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                              2436 A; 1181 C; 1345 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAM50340, AAM50341, AAM50342, AAM50343
                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 5281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Barry
                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                Score 1086; DB 24;
Pred. No. 2.3e-254;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           달,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             encodes AAM50342"
                                                                                                                                                                                                                                                                                                                                                                                                                                                2277 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                          4435
                                                                                            240
                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                           4255
                                                                                                                                  4375
                                                                                                                                                                                                             4315
                                                                                                                                                                                                                                                                                                                                60
                    300
                                                                                                                                                                                                                                                   120
RRESULT 3
AXX8448
ID AAX8
XX
XX
AC AAX8
XC
DT 22-S
XX
DZ CS2
XX
XX
CS2
XX
KW CS2
KW ente
XX
XX
Enter Service S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                      ΔÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                CS2 gene cluster; CotA; CotB; CotC; CotD; pilin protein; immunogen; enterotoxigenic E. coli; human upper intestine; diarrhoeal disease; enteric infection; therapy; ds.
                                                                                                                                    22-SEP-1999
                                                                                                                                                                         AAX84848;
                                                                                                                                                                                                             AAX84848
                                                                                                                                                                                                                                                                                                                                                                                      5216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4436
                                                                                              gene
                                                                                                                                                                                                                                                                                                             5276
                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATA 4495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAACTAAAAAATTTGCCTTTTGGTGGTGATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT 360
                                                                                                                                                                                                                                                                                                                                                                                      ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATATTTTATATATTCCTGCTGGC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                cluster
                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                             CTCTAG
                                                                                                                                                                                                                                                                                                                                              CTCTAG
                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT
                                                                                                                                                                                                                                                                                                                                                1086
                                                                                                                                                                                                               DNA; 5798
                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                      5275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
```

```
Ŋ,
                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                            밁
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OS XXX PRO XXX
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence represents the Escherichia coli CS2 gene cluster, and encodes the CS2 pilin proteins (CotA, CotB, CotC, and CotD) of the invention. CS2 pilins are long proteinsecous molecules thought to mediate attachment of enterotoxigenic E. coli (ETEC) to and/or promote colonisation of the human upper intestine. The CS2 gene cluster may be used to produce immunogens for vaccinating patients against diarrhoeal diseases caused by ETEC bacteria. This type of enteric infection is a major cause of death among infants in developing countries and in immunocompromised (e.g. Acquired Immune Deficiency Syndrome (AIDS)) or elderly adults. The vaccine comprises more than 1 antigenic determinant (epitopes) from more than 1 pilus type to be effective against more than
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Caron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5798 BP; 1904 A; 874 C; 1221 G; 1799 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Isolated nucleic acids encoding Escherichia coli CS2 pilin puseful for vaccinating against diarrhoeal diseases caused by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-PSDB; AAY22323, AAY22324, AAY22325, AAY22326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UYEM-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        type of ETEC infection.
4997
                                                                                                                                                                                                                                                                   4877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1999-443623/37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTCACAATACACTTAATGGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAATCTTCCCCCAAACATAATATATTAAATAAACCATATTACAGCATACAGTGAAAGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTCTTTTTGACAGGATGACGTTTTTATGTATGTCATCAACAGATGCATCTAAAGGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Column 27-38; 35pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAA 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCATCGTATCCTGCTCATTATATTTCATGAACATGTTGCTGGTTACAATAAAGATCAC
                                                                                                                                                                  GGCGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATATTTACTGAAAAGAAAAGTCTGGCCAGAAAAACATTAAACTTAAAAGGATATAAGAGA
AAAAGGCATTACGACTATAATCATGGTACTTACAAAGTTAATATCACAGTTGATTTGACA
                                                                 AAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAAATATCACTATTAAAATTAACT
                                                                                                                                                                                                                                                               ACTGTTAAATGTGTAGGTTCATTCACAAGAGGAGTAGATTTCACTTTATATATCCCACAA
                                                                                                                                                                                                                                                                                                         CATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTTATATATTTCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                   TTTTTATATGAATCAGATAGATGCATTCATTATGTCGATAAAATGAATCTCAATTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTATTGTTCAAAAGTGTTAACTGC------CCATCCGGCCTAACACTTAACTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTCCGACAGGAGAAAACTCCA----AATCCTCTCAAGGGGAGACTAATATTAAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Froehlich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMORY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95US-0483101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95US-0483101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 298.8; DB Pred. No. 9.2e-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
5056
                                                                                                                               4996
                                                                                                                                                                                                                                                                                                                                                                                                   4876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4642
```

```
RESULT 4
RESULT 8
RESULT 4
RESULT 8
RESULT 4
RESULT 8
RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΔÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2277/c
ABL92277
                                                                01ek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA repair cytosine methylation; PMS2L1; PMS2L12; PMS2L2; PMS2L3; PMS2; L4; PMS2L5; PMS2L6; McMT; MSH2; NUDT1; TDG; INPPL1; RFC4; DDIT1L; FRACB; XRCCB; ataxia telangiectasia; aging; Bloom's syndrome; Cockayne syndrome; Nijmegen breakage syndrome; Werner syndrome; Immunodeficiency; trichthiodystrophy; Fanconi's anaemia; solid tumour;
                                                                                                                                                                                 06-APR-2000; 2000DE-1019058
07-APR-2000; 2000DE-1019173
30-JUN-2000; 2000DE-1032529
01-SEP-2000; 2000DE-1043826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unidentified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chemically treated DNA repair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUL-2002
                                                                                                                                                                                                                                                                                                                                               06-APR-2001; 2001WO-EP03972
                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200181622-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1018
                                                                Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              838
                                                                                                                          EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACACTCTA 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAATCAGTGTTCCGGTGTTGTGTTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAA 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGATGGCTATAGTACACATAGTCAAAGTATAGAAATGAGGTTTCAGGATGACTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTTCAGGATAACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACAAAGGAAATATTCAGGTCTGGACACCAAAGTTTCATAGCGATCCTAGAATTGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAAGTGACGCTCGCGTCGATCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGATTAGTATTCCAGTACTATGCTGGCCAGCAAACTTGACATTTATGTCAGAGCTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTTTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATTTACGTCCTGAAGGTAATGGTAAATATTCTGGTAGTAACGTGCTTGAGATGTGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTTGCGTCCAACTGGTGGGGGCACATATATTTGGAAGAAATTCTGTTGATATGTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATCCAGAAGCGGGTGAGTATTCAGGAATACTTAACGTAACATTTACTCCTAGTAGTTCA 5536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATCCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTAATGATACTTCGTCATTGTTTATAAACTGGAATCGTATTAAGTCTGTATCCTTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAACTTTCTCTTCTTTAGGAGGACGAGAGTTTTATCCAAATAATGGAGAGGCTTTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACAGGAAATAATGAATATAATCTTATAAAAAACTGGAGAGCCATTAAAAAAATTGCCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAATCTGATGGGAAATTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10279
                                                                Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene fragment complementary
                                                                <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             to#43.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         837
```

WPI;

2002-034446/04

```
RESULT 5
ABL33591/c
ID ABL335
XX ABL335
XX ABL335
XX ABL335
XX BABL335
XX BABL35
XX BABL3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ನಿನಿನಿಸಜ್ಞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                             neuroprotective; anti-HIV; anticonvulsant; ophthalmological; antirheumatic; antiarthritic; antidiabetic; antipsoriatic; antiinflammatory; cancer; eye disease; arteriosclerosis; anaemia; acute myeloid leukaemia; Alzheimer's disease; AIDS; epilepsy; neurofibromatosis; rheumatoid arthritis; psoriasis; bowel disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18 nucleotides of chemically treated DNA of genes associated with DNA repair, and their complements. The invention also relates to nucleic acids comprising at least 18 base pairs of the chemically pretreated DNA of genes associated with DNA repair selected from PMS2L1, PMS2L12, PMS2L12, PMS2L13, PMS2, 14, PMS2L5, PMS2L6, MGMT, MSH2, NUDT1, TDG, IMPPL1, REC4, DDIT1L, FANCB, or XRCC8. Nucleic acids of the invention and related oligomers, are useful for diagnosis of diseases associated with gene repair, specifically ataxia telangiectasia, aging, Bloom's syndrome, Cockayne syndrome, Nijmegen breakage syndrome or Werner syndrome, immunodeficiency, trichthiodystrophy, Fanconi's anaemia, solid tumours and cancer, particularly by determining status of cytosine methylation and/or by detecting single-nucleotide polymorphisms. Determination of individual methylation patterns may allow development of individualised therapies. The sequences given in records AB192192-AB192335 represent
                                                                                                                                                                                        Human; immune system disease; cytosine methylation; antiasthmatic;
antiarteriosclerotic; antianaemic; cytostatic; nootropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repair, and their complements.

Note: The sequence data for this patent is not represented in the specification, but is based on sequence information supplied by ti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          individual methylation patterns may allow therapies. The sequences given in records chemically pre-treated DNA fragments from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABL33591 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1;
                                                                                                                                                                                                                                                                                           Human immune
                                                                                                                                                                                                                                                                                                                                                          26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                         ABL33591;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cytosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New nucleic acid derived from for diagnosis, e.g. of ataxia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match 4.5%;
Local Similarity 47.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200
         ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTATATCTTCATAAACACCCAATATTTATTATATCTCATTTAAAATTCATTAAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAAACAAATAACTTAATTTCAACACGAATAAAAAAAATTAAAAAATAAAATTAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGTG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATA 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAAA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                        system
                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ID NO 86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP; 3242 A; 65 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Office.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA; 10279
                                                                                                                                                                                                                                                                                     associated gene SEQ
                                                                                                                                                                                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25pp + sequence listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 49.4; DB Pred. No. 0.056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genes associated with DNA repair, useful telangiectasia, by determination of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  containing
                                                                                                                                                                                                                                                                                           ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5127 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genes associated with DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156;
                                                                                                                                                                                                                                                                                           1564.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 10279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of at with D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 6
AAD22328/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      can be used in the diagnosis and treatment of immune system disorders, including eye diseases such as retinopathy, neovascular glaucoma and macular degeneration, arteriosclerosis, anaemia, cancer, acute myeloid leukaemia, Alzheimer's disease, AIDS, epilepsy, neurofibromatosis, rheumatoid arthritis, psoriasis and inflammatory/ulcerative bowel diseases. The present sequence is a gene of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      olek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleic acid comprising fragmer for diagnosis and treatment of cytosine methylation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-JUN-2000;
01-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200200928-A2
Chemically
                                   12-FEB-2002
                                                                                                           AAD22328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 10279 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-2001; 2001WO-EP07537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (EPIG-)
                                                                                                                                                                                                                                                                        7425
                                                                                                                                                                                                                                                                                                                                            7485
                                                                                                                                                                                                                                                                                                                                                                                                                    7545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7605
                                                                                                                                                                                                                                      380
                                                                                                                                                                                                                                                                                                            320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140
                                                                                                                                                                                                                                                                                                                                                                                260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EPIGENOMICS
                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 1564; 32pp + Sequence Listing;
                                                                                                                                                                                                                     GTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTTAACTGTAATAAAAAC 438
                                                                                                                                                                                                                                                                                             AAAGAAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAA 379
                                                                                                                                                                                                                                                                                                                                            AAAAACAAATAACTTAATTTCAACACGAATAAAAAAATTAAAAAATAAAATTAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATGACTITITATGTTTTGTCTCTCACAATACACTTAATGGAGCATGTCCAACCAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Piepenbrock
                                                                                                                                                                                                    ACTATATCTTCATAAACACCCCAATATTTTATTATATCTCATTTAAAATTCATTAAATAC
                                                                                                                                                                                                                                                                                                                                                                   AGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATATAACATTACAATTTACGGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATA
                                                                                                                                                                                                                                                                        ACATAAAAATACTAATAATATATACAAATCCAAACTTTTATCAAACAAAACAATTAAAAA
treated human genomic DNA #18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   invention provides a number of human immune system associated are modified by the methylation of cytosines. The sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000DE-1032529
2000DE-1043826
                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3242 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fragment of chemically modified ment of diseases associated with
                                                                                                           10279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65 C; 1845 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 49.4; D
Pred. No. 0.05
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5127
associated with DNA adducts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Η;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 10279;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene, useful
abnormal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                            7426
                                                                                                                                                                                                                                                                                                                                                                                319
                                                                                                                                                                                                                                                                                                                                                                                                                    7486
                                                                                                                                                                                                                                                                                                                                                                                                                                                        259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                        7366
```

0

Š

δÃ 밁 Ş 밁 Ş В

밁 S 문

gene

therapy;

tumour;

cancer;

human;

cytosine methylation.

DNA adduct;

peptide nucleic acid; PNA;

Homo

23-APR-2002

(first

entry)

associated

genomic

DNA #141

DNA transcription associated gene; peptide nucleic acid; PNA-oligomer; PNA; cytosine methylation state; SNP; retroviral infection; gene; ds; single nucleotide polymorphism; adenosine deaminase deficiency; cancer; viral infection; Sezary syndrome; haematological disorder; tuberculosis; immunological disorder; Werner syndrome; developmental disorder; psoriasis; Rieger's syndrome; neurological disorder; erythropoiesis; neurodegenerative disorder; Waardenburg syndrome; Niemann-Pick disease; myelodysplastic syndrome; myocardial infarction; hypertension; arthritis; angiogenesis; congenital heart disease; HDR syndrome; gene therapy;

disorder; solid tumour.

06-APR-2001; 2001WO-EP03973

06-DEC-2001 WO200192565-A2 Unidentified. polyglutamine

```
δÃ
                                                                  밁
                                                                                                 Ş
                                                                                                                                    밁
                                                                                                                                                                Q
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to chemically modified DNA of genes associated with DNA adducts, oligonuclectides and/or peptide nucleic acid (PNA) colligoners for detecting cytosine methylations as well as method for ascertaining genetic and/or epigenetic parameters of genes associated with DNA adducts. Oligoners of the invention coupled to a solid phase is useful for manufacturing an arrangement of different oligoners (array) fixed to a carrier material for analysing diseases associated with the methylation state of the CpG dinucleotides of chemically pretreated DNA of genes associated with DNA adduct. They are also useful for ascertaining genetic and/or epigenetic parameters for the diagnosis and/or therapy of existing diseases or the predisposition to specific diseases by analysing cytosine methylations. Sequences of the invention are useful for diagnosis and therapy of solid tumours and cancers. They are also useful in gene therapy. The present sequence is chemically pretreated human genomic DNA associated DNA adducts.
                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-APR-2000;
30-JUN-2000;
01-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Olek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Novel nucleic acid comprising sequence of a segment of chemically pretreated DNA of genes associated with DNA adduct, useful for diagnosis and therapy of solid tumors and cancer
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           06-APR-2001; 2001WO-EP04015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200177378-A2
                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                      7485
                                                                                                                                                                                                      7545
                                                                                                                                                                                                                                                                   2002-010923/01
                                                                                                                                                                                                                                                                                                     140 AACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATA 199
                                                                                                                                                                                                                                                                                                                                       143;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Page 65-68;
                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EPIGENOMICS AG
                                                                                                                                  AAAAACAAATAACTTAATTTCAACACGAATAAAAAAATTAAAAAAATAAAATTAAAAAAA
                                                                                                                                                    AGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAAACATTACAATTTACGGAAA
                                                                                                                                                                                                   GGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGTG
ACTATATCTTCATAAACACCCCAATATTTATTATTATCTCATTTAAAATTCATTAAATAC
                                 GTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTAACTGTAATAAAAAC
                                                                    ACATAAAAATACTAATAATATATACAAATCCAAACTTTTATCAAACAAAACAATTAAAAA
                                                                                               AAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Piepenbrock
                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000DE-1019058.
2000DE-1019173.
2000DE-1032529.
2000DE-1043826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         therapy of solid tumors
                                                                                                                                                                                                                                                                                                                                                                                                      BP;
                                                                                                                                                                                                                                                                                                                                                                                                      3242 A; 65
                                                                                                                                                                                                                                                                                                                                                    4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Berlin
                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                     Score 49.4;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                      C; 1845 G;
                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and cancer
                                                                                                                                                                                                                                                                                                                                                                                                      5127 T;
                                                                                                                                                                                                                                                                                                                                                       . 056;
                                                                                                                                                                                                                                                                                                                                                                     DB 24;
                                                                                                                                                                                                                                                                                                                                       156;
                                                                                                                                                                                                                                                                                                                                                                                                      0 other;
                                                                                                                                                                                                                                                                                                                                                                     Length 10279;
                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                    Gaps
                                 438
                                                                                                   . 379
                                                                                                                                  7426
                                                                                                                                                                                                     7486
                                                                                                                                                                   319
                                                                                                                                                                                                                                    259
                                                                                                                                                                                                                                                                   7546
```

```
The invention relates to a nucleic acid, which comprises a segment of the CC chemically pretreated DNA of genes associated with DNA transcription from CC one of 346 sequences, and an oligomer, in particular an oligonucleotide CC one of 346 sequences, and an oligomer, in particular an oligonucleotide CC to the chemically pretreated DNA of genes associated with DNA CC transcription. The set of oligomer probes are useful for detecting the CC transcription. The set of oligomer probes are useful for detecting the CC in a chemically pretreated genomic DNA. The nucleic acids are useful for CC diagnosing or treating diseases associated with DNA transcription CC (particularly with the methylation status), e.g. adenosine deaminase CC deficiency, viral infection, retroviral infection, Sezary syndrome, haematological disorders, immunological disorders, werner syndrome, CC chaematological disorders, immunological disorders, werner syndrome, neurological disorders, psoriasis, Rieger's syndrome, CC syndrome, Nipertension, angiogenerative disorders, waardenburg CC syndrome, Nipertension, angiogenesis, erythropolesis, congenital heart CC disease, HDR syndrome, anthritis, polyglutamine disorders, solid tumours CC or cancer. Sequences ABK28127-ABK28472 represent DNA transcription CC Note: The sequence data for this patent did not form part of the printed or cancer is sequenced at a for this patent of the printed or cancer.
 Best Local Sir
Matches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Olek
                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New nucleic acids or oligomers, useful for diagnosing or treating diseases associated with DNA transcription, e.g. immunological disorders, Werner syndrome, psoriasis, myocardial infarction, sol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-APR-2000; 2000DE-1019058.
07-APR-2000; 2000DE-1019173.
30-JUN-2000; 2000DE-1032529.
01-SEP-2000; 2000DE-1043826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1;
                                                                                                                      specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tumours or cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2002-090046/12
                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EPIGENOMICS
                                                                    9504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID No 281;
                                                                                                      Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Piepenbrock C,
                                                                                                  but was obtained in electronic format directly nt Office.
                                                                    ₽P;
                                                                   2528 A; 138 C; 1853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AG
                 46.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Berlin
Score 48.2; DB 24;
Pred. No. 0.11;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.
                                                                   G; 4985 T; 0 other
                                 Length
```

٦

RESULT 7
ABK28407/c
ID ABK284
XX
AC ABK284

ABK28407 standard;

DNA;

9504

ВP

Ş

317

Conservative

0;

Indels

0,

Gaps

AAAAAAGAAGTITAAATAAAAAGAGAGCTACAAATTAAAGGCTAIAAACAATTAITGTTCA

ABK28407

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
       The present invention describes proteins and their fragments (I) encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum. Also described are: (1) nucleotide sequences (II) encoding (I); and (2) vaccines against P. falciparum infection comprising (I) or (II). (I) and (II) are useful for the development of vaccines against P. falciparum infection. (I) and polyclonal antisers or a monoclonal antibody raised to immunogens comprising the sequences of (I), are useful in the detection of infection with P. falciparum. Furthermore, (I) (especially when they are rifins or secreted or membrane proteins) can aid the identification of drugs to treat or prevent P. falciparum infection, or they can be used to identify drug resistance in
                                                                                                                                                                                                                                                                                                          (HOFF/) HOFFMAN S.
(CARU/) CARUCCI D.
(GARD/) GARDNER M.
(VENT/) VENTER J C.
                                                                                                                                                                                                Proteins encoded by chromosome 2 of the human Plasmodium falciparum, useful as antimalarial diagnosis of P.falciparum infection -
                                                                                                                                                                                                                                                        WPI;
                                                                                                                                                                                                                                                                                                                                                                             05-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plasmodium falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmodium falciparum; chromosome 2;
antimalarial; malaria; protozoacide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-NOV-2000
                                                                                                                                                                      Disclosure; Page 482-484; 577pp; English
                                                                                                                                                                                                                                                                                                                                                                                                        05-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                   11-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                            W0200025728-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmodium falciparum chromosome 2 related DNA sequence SEQ ID NO:272.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA70139;
                                                                                                                                                                                                                                                                                  Hoffman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAA70139 standard;
falciparum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          497
                                                                                                                                                                                                                                                        2000-365347/31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 377
                                                                                                                                                                                                                                                                                 ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGGTTACCTCAGTTCAAAAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATATATTCTTCATTTCTAAAATAA 8748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTATAAAAAACATCAACTATAAAATTCATAAATTTAAAATTTATCTTTTAAACACTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACGATATAGTGAGA 556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAA 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAACAAAACGTTTAATAAATTTATATAAAAAAATTATAAAAACAAAACTTAAAAATATTA 8893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCGGCTTCAGGTGCAAGTTTATATTTATATTCCTGCTGGCGAACTAAAAATTTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carucci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
Sequencing
                                                                                                                                                                                                                                                                                                                                                                             98US-0107131
                                                                                                                                                                                                                                                                                                                                                                                                        99WO-US26796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA;
                                                                                                                                                                                                                                                                                 Á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5139
                                                                                                                                                                                                                                                                                 Gardner
of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВР
                                                                                                                                                                                                                                                                                 ĭ
Plasmodium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  641
                                                                                                                                                                                                                                                                                 Venter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human malaria parasite;
                                                                                                                                                                                                                                                                                 JC;
                                                                                                                                                                                                               malarial vaccines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                insecticide;
                                                                                                                                                                                                               parasite,
and in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              496
```

```
RESULT 9
ABL10866/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88888888
몽
                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subsequent identification of proteins encoded by it will help to expand our understanding of parasite biology, a process hampered by the complexity of the parasitic lifecycle, and provide new targets for vaccine and drug development. Parasite resistance to drugs and mosquito resistance to insecticides have led to a resurgence of malaria in many parts of the world, and there is a pressing need for vaccines and new drugs. AAA70078 to AAA70287 and AAB18144 to AAB18352 represent nucleotide and protein sequences given in the present invention, but which are not specifically mentioned within the specification.
                                                                 23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                           Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                               ABL10866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5139 BP; 2440 A; 434 C; 712 G; 1553 T; 0
           Venter JC,
                                       (PEKE ) PE
                                                                                                        23-MAR-2001; 2001WO-US09231
                                                                                                                                     27-SEP-2001.
                                                                                                                                                                 WO200171042-A2
                                                                                                                                                                                                                     pharmaceutical;
                                                                                                                                                                                                                                     Drosophila;
                                                                                                                                                                                                                                                             Drosophila melanogaster expressed polynucleotide SEQ ID NO 27080
                                                                                                                                                                                                                                                                                          26-MAR-2002
                                                                                                                                                                                                                                                                                                                      ABL10866;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1177
                                                                                                                                                                                                                                                                                                                                                                                                                      1357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           433
                                                                                                                                                                                                                                                                                                                                                                                                                                                553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    193 TATGATAGGATGACTTTTTTATGTTTTGTCTTCACACAATACACTTAATGGAGCATGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTT 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATTATAATAATATTTTTAAATCCATTAAATGATAATTCAAATAATGTTGTTATTACA 1056
                                                                                                                                                                                                                                                                                                                                               standard; cDNA; 4176
                                                                                                                                                                                                                                                                                                                                                                                                                    GAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATAAATATGGTGTAAAGAGGGAAAACCAGGAAGATATAAATGTAATAAAAATAATATG 1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAAAGGTTTCTTTTTATAATTCTAAGGATGAGGACTTATTTAATGAAAAAGAAATAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAAT 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTG 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTGTGATAATAAAGAAAGTTATCGAAACAGCACAAGTGATATGATAAACAAAATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACGATATAGT 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATTTCCTGCTGGCGAACTAAAAAAT 492
                                       CORP NY
             Adams
                                                                                                                                                                                                                                  developmental biology; cell signalling;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                               2000US-191637P
2000US-0614150
                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                     gene;
           ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.3%;
44.5%;
                                                                                                                                                                                                                      88
           Ŀ
             PWD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 47.2; DB Pred. No. 0.16;
          Myers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
           물
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     other;
                                                                                                                                                                                                                                   insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1116
                                                                                                                                                                                                                                                                                                                                                                                                                   1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1296
                                                                                                                                                                                                                                                                                                                                                                                                                                              612
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SX
                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCCCCX PX PTTX XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
Olek A,
                                                                                                                                                                                                                               Human; signal transduction associated gene; cytosine methylation state; CpG island; signal transduction associated disease; solid tumour; cancer; antitumour; cytostatic; mutant; ds.
                                                         30-JUN-2000;
01-SEP-2000;
                                                                                                                                                            WO200200926-A2
                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                       Signal transduction associated gene modified complementary DNA #37.
                                                                                                                                                                                                                                                                                                                                                                            ABK31231 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          capable of detecting 1000 or more genes from Drosophila. The invent useful in developmental biology and in elucidating cell signalling cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins (ABB57737-ABB72072).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; SEQ ID NO 27080; 21pp + Sequence Listing; English
                                                                                                   29-JUN-2001; 2001WO-EP07472
                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                     23-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4176 BP; 1186 A; 862 C; 837 G; 1291 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-656860/75.
P-PSDB; ABB66763.
                              (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from Drosophila
                              EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCAAATACGCATCGATGCTAATAACCCGTGCTCCGTTCGAAAATATTACCATAATGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGAAGCAAATATTTTAATATTGGTTCTGGTATGGGTTAACATCAAAAAGAGCATTTT
 Piepenbrock C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAAATGATGACACCAAAGAAATTGCATATACT-TTGTCACTTCTCTTGGCGGGTAAAAGT 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGGAAGAATTCTGTTGATATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TT 2323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAATTTTTATCTAAGGAAAA 808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                       2000DE-1032529
2000DE-1043826
                                                                                                                                                                                                                                                                                                                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             relates to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.2%;
56.6%;
                                                                                                                                                                                                                                                                                                                                                                            DNA;
                              aG
                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             an isolated nucleic
 Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 detection reagent for detecting 1000 or more for elucidating cell signalling and cell-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 45.2; DB
 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid detection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 4176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             reagent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
```

```
The present invention relates to chemically modified DNA sequences of signal transduction associated genes. The DNA sequences are chemically modified using a solution of bisulphite, hydrogen sulphite or disclosed are oligonucleotides and/or PNA oligomers for detecting the cytosine methylation state (CpG islands) of these genes, and a method for the diagnosis and/or therapy of genetic and epigenetic parameters of genes associated with signal transduction. The genomic DNA can be obtained from cells or cellular components which contain DNA, e.g. cell lines, biopsies, blood, sputum, stool, urine, cerebral-spinal fluid, tissue embedded in paraffin such as tissue from cyes, intestine, kidney, brain, heart, prostate, lung, breast or liver, histologic object sildes, and all their possible combinations. The sequences of the invention are useful for the diagnosis and therapy of diseases associated with signal transduction e.g. solid tumours and cancer. ABK31158-ABK31545 represent chemically pretreated genomic DNA sequences of different genes associated with signal transduction, or their complementary sequences.
                                                 their complementary sequences.
Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from the European Patent Office.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 1; SEQ ID No 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oligonucleotide for diagnosis and therapy of diseases associated with signal transduction e.g. cancer, comprises chemically modified genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequences of genes associated with signal transduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2002-147896/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24pp; English.
```

Query Match Best Local Matches 5747 5807 5867 5987 6047 244 124 169; 64 4 Similarity 44.9 59; Conservative AATAAGATTTTATTTATTTTTACATTGTTTTTCTCTCTTCAGTACTTTTTACATTTTGCTGTA CAATTATTGTTCAAAA 379 ATATAAACTAAAAAAAAACTATTTAATTTACATATAAATTCCAATTTTATAAAAATAAA TTACAATTTACGGAAAAAAGAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTATAAA 363 ACAATTTAAAAAATATACCCCAATTTTTTACTATATATTAATCACATAACATA GCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACA 303 CATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGA 243 TCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGG CTTTACTTAATCAAAA 5672 AACGAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGT 183 ACATCTAATCCCAAAAAACTAAAAATTCATTACACAAAAATTAACTAACCTATATTAAACT 5928 ATAAATAATATAATAAATAAATAATTCTATATTACTATTAAATATTCTTATCACAAT 4.18; 0; Score 44.8; Pred. No. 0. Mismatches DB 24; 207; Length 13133; Indels 0; Gaps 5808 5868 5988 63

δÃ

밁

밁 Ş 밁

Sequence 13133 BP;

3676 A;

350 C; 2780 G; 6326 T; 1 other;

15-JUL-2002 ABN80061; ABN80061

(first entry)

ABN80061

ે

standard;

밁 Ş Q 밁 Š

밁

Human chemically modified

disease associated

gene

SEQ

Ħ

ö

78

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DE CALA LA CONTRACTOR DE CALA CO
                                      S
                                                                                                               밁
                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CC The invention relates to a nucleic acid (I) comprising a sequence at CC least 18 bases in length of a segment of chemically pretreated DNA (II) of genes associated with development selected from 87 genes listed in CC of genes associated with development selected from 87 genes listed in CC sequences (ABN79984-ABN80333) or their complements. The invention is CC useful for the diagnosis or therapy of diseases associated with CC development genes, in particular disease related to homeobox containing CC genes (HOX), like diabetes, cancer, apoptosis related diseases, syndromes CC associated with congenital heart disease, epilepsy, diseases related to histone deacetylation, Currarino syndrome, diseases related with the CC disponent of the brain and limb girdle muscular dystrophy and dwarfism. CC ligomers specific to each of the genes are useful for detecting the CC methylation state of all top dinucleotides within the 350 sequences or CC (II) and their complementary sequences, as primer oligonucleotides for CC the amplification of the 350 sequences, (II) and/or their complements and CC single nucleotide polymorphisms (SNPs).

CC Note: The sequence data for this patent did not form part of the printed constituted by the complement of the printed constituted to have the complement of the constituted to have the complement of the constituted to have the complement of the constituted to have the constituted to the constituted to the con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel nucleic acid useful for diagnosis and therapy of diseases associated with development genes such as diabetes, comprises a sequence of a segment of chemically pretreated DNA of genes asswith development -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    specification but is based on sequence information supplied the European Patent Office.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01ek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-JUN-2000;
01-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 6971 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-2001; 2001WO-EP07536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; development; homeobox gene; HOX; diabetes; cancer; apoptosis; heart disease; epilepsy; histone deacetylation; muscular dystrophy; dwarfism; single nucleotide polymorphism; SNP; cytosine methylation; antidiabetic; cytostatic; anticonvulsant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (EPIG-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200200927-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity hes 135; Conserv
                                                                                                                                                                                                                                                                  6723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۶
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EPIGENOMICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Piepenbrock C,
AAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAA 378
                                                                                                               AATTCCTTCACCTCCTCATATTTTAACAATAAACCACAAAATACATTAACAATATAAATA
                                                                                                                                                                                                                                                                                                            AGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGAT 198
                                                                                                                                                                                     GAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAA
                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000DE-1032529
2000DE-1043826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ID NO 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1786 A; 282 C; 1633 G; 3269 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Berlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 43.8;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , comprises a of genes associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6971;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Derwent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                               6604
                                                                                                                                                                                 318
                                                                                                                                                                                                                                                                                                                                                                                                         6724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
RESULT 12
ABL01847/c
ID ABL01
                                           δÃ
                                                                                                                                                         ρy
                       밁
                                                                  밁
                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                         Query Match
Best Local Similarity
                                                                                                               Matches
                                                                                                                                                                                                           The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL101676-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                         Sequence
                                                                                                                                                                            The sequence data for this patent did not form specification, but was obtained in electronic at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                  Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABL01847
                                                                                                                                                                                                                                                                                                                                                New isolated nucleic genes from Drosophila
                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-656860/75
                                                                                                                                                                                                                                                                                                                                                                                                                   Venter
                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila; developmental pharmaceutical; gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABL01847;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-MAR-2001; 2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-MAR-2002
                                                                                                                                                                                                                                                                                                                                        interactions
                                                                                                                                                                                                                                                                                                                                                                                                                                       (PEKE )
                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>ہ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6603
                        1920
                                             239
   299
                                                                                                              131;
                                                                                                                                                                                                                                                                                                                                                                                                                   'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                        PE
 TAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCT
                                                                 SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAATTTAATATAACACTTCACGTCACACATATATAACTCTAATTTAA
                       AGTGTTTTTACCATCGAAATGAGAACAAAAATGTGTAATTTCGATTGCGGATCATAATTA
                                           ATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATA
                                                                                       AAAGTCATACTCTGTATGATAGGATGACTTTTTTTATGTTTTGTCTTCTCACAATACACTTA
                                                                                                                                                         2036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                         CORP NY
                                                                                                                                                                                                                                                                                                                                                                                                                 Adams M,
                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0614150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-191637P
                                                                                                                                                         ВP;
                                                                                                                                                         703 A; 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA;
                                                                                                                                                                                                                                                                                                              23; 21pp + Sequence
                                                                                                                      4.0%;
                                                                                                                                                                                                                                                                                                                                                 acid
a and
                                                                                                                                                                                                                                                                                                                                                                                                                   Ŀ
                                                                                                                                                                                                                                                                                                                                                                                                                   PWD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                               detection reagent for detecting for elucidating cell signalling
                                                                                                             0
                                                                                                                         Score 43.4;
Pred. No. 1
                                                                                                                                                         ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                  Myers
                                                                                                             Mismatches
                                                                                                                                                         385 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polynucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                   EΨ
                                                                                                                                                        470 T;
                                                                                                                                                                                                                                                                                                                Listing; English.
                                                                                                                                   DB 23;
                                                                                                                                                                                                    form
                                                                                                             146;
                                                                                                                                                        0
                                                                                                                                                                                         tormat
                                                                                                                                                                                      part of the printed format directly from
                                                                                                                                                         other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ
                                                                                                                                   Length
                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6497
                                                                                                                                   2036;
                                                                                                                                                                                                                                                                                                                                                1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23.
                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                0 or more cell-cell
                                                                                                             Gaps
                                                                                                                                                                                          WIPO
                       1861
                                                                 1921
                                                                                                                                                                                                                                                                               ŝ
                                                                                                             0
```

밁

AAATCGCATAATTATGCTAAAAAAAAAACACTTTGTACAAAGTATGCTACAGATCACAGAAC

```
RESULT 13
ABL01846/c
ID ABL018
  밁
                          Qγ
                                                          밁
                                                                                  Ş
                                                                                                                                                                       X S X E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                  Matches
                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                   capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryctes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABL16176-ABL30511), expressed DNA sequences (ABL01840-ABL16175) and the encoded proteins
                                                                                                                                                                                                              The sequence data for this patent did not form specification, but was obtained in alactronic f
                                                                                                                                                                                                                                                                                                                                                                    Claim 1; SEQ ID NO 20;
                                                                                                                                                                       Sequence 6080
                                                                                                                                                                                                at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                     The invention relates to an isolated nucleic acid detection reagent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Venter JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAR-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-MAR-2001; 2001WO-US09231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster expressed polynucleotide SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                            New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (PEKE ) PE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200171042-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pharmaceutical;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drosophila;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABL01846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABL01846 standard; cDNA; 6080
                                                                                                                                                                                                                                                                                                                                                                                                 interactions -
                                                                                                                                                                                                                                          ABB57737-ABB72072)
  4964
                             239
                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001-656860/75.
DB; ABB57743.
                                                                                                                            Similarity
AGTGTTTTTACCATCGAAATGAGAACAAAAATGTGTAATTTCGATTGCGGATCATAATTA 4905
                                                      AAAGTCATACTCTGTATGATAGGATGACTTTTTTTATGTTTGTCTTCTCACAATACACTTA
                          ATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGTTATTTCGATTAAAAAAGAGGAAAACGATCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAG 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATATTAATATATATTATAGGTTTTAGTGTATATCTGGTAATAATTATTATGCATTAT 1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORP NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Adams M,
                                                                                                              4.0%;
llarity 47.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       developmental biology; cell signalling; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-191637P.
2000US-0614150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                       вp;
                                                                                                                                                                                                             but was obtained in electronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene;
                                                                                                                                                                     1785 A; 1353 C; 1216 G; 1726 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ľ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88
                                                                                                                                                                                                                                                                                                                                                                 21pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PWD,
                                                                                                                                                                                                                                                                                                                                                                                                         detection reagent for detecting 1000 or more for elucidating cell signalling and cell-cell
                                                                                                               0;
                                                                                                                           Score 43.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Myers
                                                                                                              ed. No. 1.4;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뙾,
                                                                                                                                        DB 23;
                                                                                                               146;
                                                                                                                                                                                                             n part of the printed format directly from
                                                                                                                                        Length 6080;
                                                                                                               Indels
                                                                                                              0;
                                                                                                              Gaps
                                                                                                                                                                                                              WIPO
                                                                                  238
                                                       4965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          418
                                                                                                                                                                                                                                                                                                                         is
                                                                                                              0
```

```
ABL55643/c
ID ABL556
XX
ABL556
XX
ABL556
XY
O1-JUL
XX
AMEPV;
KW AMEPV;
KW Geneti
OS AMSact
XX
II-FEB
XX
II-FEB
XX
II-FEB
XX
III-AUG
PF 10-AUG
PF 10-AUG
PR 11-SEP
XX
III-BUS
PR WPI; 2
YX
Novel
PT Novel
PT Polynu
PT Po
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to a recombinant entomopox virus (EPV) vector, comprising a polynucleotide encoding a protein operably linked with a heterologous promoter sequence. The invention also concerns methods for providing gene therapy for genetic deficiency disorders. Vectors of the invention are useful for delivering a polynucleotide encoding a protein invention are useful for delivering a polynucleotide encoding a protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                 to a vertebrate cell preferably a mammalian cell, such as a human cell. The vector is introduced into the vertebrate cell by infection in a viral particle, or by transfection, transduction, or injection either in vitro or in vivo. The vector is useful for the delivery and expression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel recombinant entomopox virus vector useful for delivering polynucleotide encoding protein to vertebrate cell, comprises polynucleotide encoding protein operably linked with heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Page 125-150; 326pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      polynucleotide encoding polynucleotide encoding promoter sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-227161/28.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Moyer RW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-AUG-2000; 2000US-224479P.
14-SEP-2000; 2000US-0662254.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200212526-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AmEPV genome fragment#1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABL55643;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABL55643 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (UYFL ) UNIV FLORIDA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-AUG-2001; 2001WO-US25287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Amsacta moorei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AmEPV;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4784 GCGTTATTTCGATTAAAAAAGAGGAAAACGATCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene therapy; viral vector;
c deficiency disorder; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATATTAATATATATATATAGGTTTTAGTGTATATCTGGTAATAATTATTATGCATTAT 4785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTC 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAATCGCATAATTATGCTAAAAAAAAAACACTTTGTACAAAGTATGCTACAGATCACAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Li Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entomopoxvirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bawden
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA; 50000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chromosome mapping; gene mapping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4845
```

biologically useful proteins in gene therapy protocols, and for delivering large DNA segments for engineering of vertebrate cells. Polynucleotides of the invention have applications in techniques such as their use as insertion sites for foreign genes of interest, hybridisation probes, for chromosome and gene mapping, in PCR technologies, and in the production of sense or antisense nucleic acids. Vectors of the invention provide for stable integration and expression of heterologous DNA in host cells, and are adapted for accepting large heterologous polynucleotide inserts which can be delivered in an infected or transformed cell and expressed in a stable fraction. The current sequence represents a fragment of the genome of the genus B entomopoxvirus from amsacta moorei

Sequence 50000 BP; 19857 A;

4373 Ç

4222 G;

21548

T; 0

```
RESULT 15
AB075107/c
ID AB075
XX
AC AB07:
AC AB07:
XX
DT 01-N(
XX
Anop
XX
Anop
XX
OS Anop
XX
PN WO2:
XX
PD 01-
XX
PF 28-
XX
PR 24
XX
(U
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
The present invention describes a purified Anopheles gambiae olfaction polypeptide comprising a 383, 394, 380, 411, 412, 391, 157 or 401 residue amino acid sequence (see ABP52833 to ABP52840) (S1), a conservatively modified amino acid sequence of them, or a sequence of (S1) with at least 20 consecutive residues. Also described: (1) an isolated polynucleotide comprising: (a) a nucleotide sequence encoding the purified Anopheles gambiae olfaction polypeptide; or (b) a nucleotide sequence that hybridises under stringent conditions to a hybridisation probe comprising a 1964, 1239, 1142, 1236, 1194, 1176, 474 or 1206 nucleotide sequence (see ABQ75102 to ABQ75105 and ABQ75110 to ABQ75113) (S2), or its
                                                                                                                                                                                                                                                                                                                                                01-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                      WO200259274-A2
                                                                                                                                                                                                                                                                                                                                                                                                                    odourant
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Anopheles gambiae odourant receptor 2 genomic DNA
                                                                                                                                 Disclosure;
                                                                                                                                                                New mosquito olfaction polypeptides and polynucleotides, useful mosquito management, i.e. controlling the pest and disease vector
                                                                                                                                                                                                                                                                                     26-JAN-2001;
24-JAN-2002;
                                                                                                                                                                                                                                                                                                                                                                                            Anopheles gambiae
                                                                                                                                                                                                                                                                                                                                                                                                                                Anopheles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABQ75107 standard; cDNA;
                                                                                                                                                      mosquito management, i.e. controlling for identifying pest control agents
                                                                                                                                                                                                                                        Zwiebel
                                                                                                                                                                                                                                                             (UYVA-)
                                                                                                                                                                                                                                                                                                                         28-JAN-2002; 2002WO-US02549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABQ75107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        તે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16170
                                                                                                                                                                                                      2002-627421/67.
DB; ABP52835.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               291 AACAAATATAACATTACCAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAAT
                                                                                                                                                                                                                                        Ξ
                                                                                                                                                                                                                                                               VIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   s gambiae;
receptor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAGATATAAAATAGATGATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCTAATAATGATTTAGATTTATAAATAAATTTAATAATTTATCTAGAGATATAATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAGTAAAAAGACGATATAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTAAGAAATAAAAATTATATAAAGAATGTGATGAATTGATACACGTTTTATTAGATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATATTTAGATTTACACACATTAATAAATCTATTTTTACTATTTTGTTTATTTTTTGACAA
                                                                                                                              F1g 4a;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                     2001US-264649P.
2002US-0056405.
                                                                                                                                                                                                                                                                VANDERBILT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                   mosquito; olfactory olfaction; gene; ds.
                                                                                                                                96pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4985
                                                                                                                                English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No. 2.8;
                                                                                                                                                                                                                                                                                                                                                                                                                              gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                               arrestin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                                                                                                                                              pest control;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      NO:10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 50000
                                                                                                                                                                  vectors,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                            for
                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                  Š
                                                                              δŌ
                                                                                                       밁
                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ğ
              밁
                                                         밁
                                                                                                                            20
                                                                                                                                                     밁
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                      2609
                                                                                                                                                                                                                                                                                                                                                                                           2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3029
                                                                                                        2549
                                                                                                                                                                                                   2669
                                                                                                                                                                                                                                                                                               2789
                                                                                                                                                                                                                                                                                                                                              2849
                                                                                                                                                                                                                           486
                                                                                                                                                                                                                                                                         426
                                                                                                                                                                                                                                                                                                                      366
                                                                                                                                                                                                                                                                                                                                                                     306
                                                                                                                                                                                                                                                                                                                                                                                                                   248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
```

CTCTGTATGATAGGATGACTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCAT

247

2850

ATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGA

TCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGG 725 **AAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAACTTGCG** ATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGG

AAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACG CTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGGCGAACT

ATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAA 425 ACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACA 365 GTCCAACCAGTGAGAATCCTAGCAGTTCAT - - CGGTCAGCGGTGAAACAATATAACATT 305 GCAATAATAAGAATAATAATAACAATAGCAATAATAATAATAATAATAATAATAATAATA

2670 485

```
8888888888888888
                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                 Matches 335;
                                                                                                                                                                                                                                                                                                                                                                                                         complement; and (2) a method for identifying an agent that binds to mosquito olfaction molecule; (b) contacting: (a) providing an isolated mosquito olfaction molecule; (b) contacting a test agent with the isolated mosquito olfaction molecule; and (c) detecting specific binding of the test agent to the isolated mosquito olfaction molecule, where the presence of specific binding identifies the test agent as a mosquito olfaction-binding compound. The mosquito olfaction molecules are useful for mosquito management, i.e. controlling this pest and disease vector. A method from the present invention of screening for substances that modulate arrestin-odourant receptor interaction is useful for identifying pest control agents. The present sequence represents Anopheles gambiae odourant receptor 2 genomic DNA from the present invention.

N.B. The features given in figure 4a are tentative and do not directly encode sent invention.
                                                                                                                                                                                                                                                                                                                                                 Sequence 4985 BP; 1319 A; 1058 C;
                                                                                          3089
                                                                                                                                                                                3149
                                               128
                                                                                                                                89
                                                                                                                                                                                                                      æ
                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID
                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                         AGATTTTATTTTTTTTACATTGTTTTTCTCTTTCAGTACTTTTTTACATTTTGCTGTATCGG
                                                                                   TTACTGGAATAATTAGAGAATAAAAAAAAAACAATAATAATAAACAATAATAAGAATAACA 3030
                                                                                                                              CAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAACG 127
ACAACAACAATAATAAGAACAACAACAACAATAATAAGAATAATAATAATAATAACAATA
                                        AATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCATA 187
                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                              NO:6 (ABP52835).
                                                                                                                                                                                                                                                                                 3.9%;
41.7%;
                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                   Score 42.8;
Pred. No. 1
                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                 990 G;
                                                                                                                                                                                                                                                                                   .
8
                                                                                                                                                                                                                                                                                                                                                 1618 T;
                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                               467;
                                                                                                                                                                                                                                                                                                        24;
                                                                                                                                                                                                                                                                                                                                                 0 other;
                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                             Gaps
  2970
                                                                                                                                                                                                                      67
```

learch Iob ti	A A
Search completed: August 25, 2003, 18:08:54	786 TGGGAAATTTTATCTAAGGAAAAT 809

٠.

000

O

a

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                     O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           imum DB
                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                         Score
   59.4
55
52
51.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic search, using sw model
                                                         Match Length
                                                                  Query
                                                                                                                                                                                                                                                                                               August 25, 2003, 16:47:22; Search time 2242 Seconds (without alignments) 11772.819 Million cell up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-839-894-9
1086
                                                                                                                                                            18:
19:
20:
21:
21:
23:
23:
25:
26:
28:
29:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     l atgaataagattttatttat.....caagtagtcaaacactctag 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22781392 seqs, 12152238056 residues
    5.5
4.8
4.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6 Copyright (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                              gb_est2:*
gb_htc:*
                                                                                                                                                                                                                                                                                                                                                                                     gb_est1:*
                                                                                                                                                                                                                                                                                                                                                                                                em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                     em_estpl:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_estin:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  em_esthum: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_estba:*
                                                                                                                                                                                                                                                                                                                               gb_est4:*
gb_est5:*
                                                                                                                                                                                                                                                                                                                                                                                                           em_estro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                  em_estov:
                                                                                                                                                                                                                                                                                                                                                                                                                                            em_estmu:*
                                                                                                                                                            gb_gss2:*
                                                                                                                                                                    em_gss_vrl:*
gb_gssl:*
                                                                                                                                                                                                      em_gss_pro:*
em_gss_rod:*
                                                                                                                                                                                             em_gss_phg:*
                                                                                                                                                                                                                              em_gss_mus:*
                                                                                                                                                                                                                                                    em_gss_fun:*
                                                                                                                                                                                                                                                            em_gss_pln:*
em_gss_vrt:*
                                                                                                                                                                                                                                                                                  em_gss_hum:*
em_gss_inv:*
                                                                                                                                                                                                                                                                                                          em_estom:*
                                                                                                                                                                                                                                                                                                                   em_estfun:*
                                                                                                                                                                                                                                                                                                                                                      gb_est3:*
                                                                                                                                                                                                                                         em_gss_mam:*
   1101
1056
1200
1101
                                                         DВ
   29
13
13
29
  CNS0100X
BX415058
BX415878
CNS0039G
                                                          ij
                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          45562784
AL098379 Drosophil
BX415058 BX415058
BX415878 BX415878
AL063921 Drosophil
                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cell updates/sec
```

o o C a

O O

a

0 0 0 0 ဂဂ

44444	43987654	26 20 30 31 31 32 33	22222211155111110088765
4444 555 4 500 500 500 500 500 500 500 500 500		44444 00000000000000000000000000000000	444
	* * * * * * * * * * * * * * * * * * *	444444 	44444444444444444444444444444444444444
928 903 994 1080 1001	1101 1101 1101 427 1026 1201	536 1101 408 460 1201 1201 1201 812 911	1101 1125 1125 1125 1124 11124 1106 1106 1100 1100 1100 1100 1100 110
29 29 29	29 11 3 29 29 29 29 29 29 29 29 29 29 29 29 29	13 12 13 28 28	11222222222222222222222222222222222222
N X X X X X	CNSOVAN / CNSOOOB8 CNSOOEVL BX403499 BX415239 BX41536104 CNSOO9AX	CNSO16HF BE224677 BE224677 B1772B35 AL532464 BX34343 AZ529785 AZ667106	CD386564 CNSO161D BX435282 BX435282 BX36016 CNSO145P BX446396 BX355654 CNSO039G CD386151 BX360752 BX360752 CNSO145U BX360752 CNSO148J CNSO1662 CNSO1662 CNSO1662 CNSO1662 CNSO1662 CNSO1662 CNSO1662 CNSO1662
	ALI/3090 TETRAGGO ALI063632 Drosophil ALI063906 Drosophil BX403499 BX403499 BX415239 BX415239 BX415239 BX415239 AL5356104 AL536104		CD386564 AGENCOURT ALO71298 Drosophil AL106171 Drosophil BX436282 BX436282 BX380916 BX380916 AL103735 Drosophil BX437039 BX447296 BX4355654 BX355654 BX355654 BX355654 BX355654 BX355654 CD389151 AGENCOURT BX380865 AL103740 Drosophil BX360752 BX360752 BH152177 ENTOD23TF AL1065218 Drosophil AL106628 Drosophil AL106628 Drosophil AL1070972 Drosophil AL070972 Drosophil AL070972 Drosophil AL070972 Drosophil AL070972 Drosophil AL070972 Drosophil BX462185 BX462185

ALIGNMENTS

REFERENCE AUTHORS TITLE ACCESSION VERSION KEYWORDS RESULT 1 CNS0100X/c LOCUS COMMENT SOURCE DEFINITION ORGANISM JOURNAL Submitted (23 JUL-1999) Genoscope · Centre National de Sequencage : BP 191 91006 EVRY cedex · FRANCE (E-mail : segref@genoscope.cns.fr · Web : www.genoscope.cns.fr) Determination of this BAC-end sequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) · http://www.edgp.ebi.ac.uk · This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etude du Polymorphisme Humain) with funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector Drosophila melanogaster (fruit fly)
Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygo
Neoptera; Endopterygota; Dlptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila. Drosophila melanogaster genome survey sequence SP6 end of BAC BACNO3G04 of DrosBAC library from Drosophila melanogaster (fruit fly), genomic survey sequence.
AL098379 Genoscope.
Direct Submission AL098379.1 GI:5609990 GSS. CNS0100X 1101 bp Insecta; Pterygota; linear GSS 26-JUL-1999

a

```
VERSION
KEYWORDS
                                                                                                       RESULT 2
BX415058
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                            DEFINITION
                                                                                                                                                                                                Qy
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                   ACCESSION
                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           967
                                                                                                                                                                           487
                                                                                                                                                                                                                                 547
                                                                                                                                                                                                                                                                                                               475
                                                                                                                                                                                                                                                                                                                                         667
                                                                                                                                                                                                                                                                                                                                                                                                                      355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                      595
                                                                                                                                                                                                                                                                                    607
                                                                                                                                                                                                                                                                                                                                                                   415
                                                                                                                                                                                                                                                                                                                                                                                            727
                                                                                                                                                                                                                                                                                                                                                                                                                                               787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                          BX415058
BX415058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
               Homo
                          Homo sapiens (human)
                                                     BX415058.1
                                                                    BX415058
                                                                               3-PRIME,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pBeloBAC11
                                                                                                                                                                                                                              MMACAYAMAMAHAMAYMMTMAMHMHAWWCTNHTWBHAWAMHAHMHAMWHMWAHAWAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NMYNYMTCHMTCCMYCHCWCCMCWCWHAWMWMWHWWHWAWAWVTHTWTWMWWWMCCTCMCT 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAWMTAHGWVHKWATMWMWRHTHTHHHRHTHWHHHTWYTMTATTHHKWMWTYNCRYKCHY 1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGAATAAGATTTTATTTATTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTG
                                                                                                                                                                           СНННМИМАМАМАНИММИСАЛАЛИМ
                                                                                                                                                                                                                                                                                   ААНТМАААСЖСНАМАТНАНТМСНТНМНМТИТТҮНТҮТСНАҮНТҮЖНСЖСЖАНАМҮКСҮНА
                                                                                                                                                                                                                                                                                                                                                                GCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCT 474
                                                                                                                                                                                                                                                                                                                                                                                            TMTTATTTATHTTTYATMTYWTWTYHCMTMSHCHCCACMHMYHCHCYMCHYMMHAWMHM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAMTAT AMTWATWT ACAHHTWWWT AMDHMMMTMMMMCTY HMWCWMY AHHHY HY CTMWHMH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTAATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACA 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAACGAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGC-----ATAC 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACA 121
                                                                                                                                                                                                     ACTGATAAGGGAAATATTCAGATAT 619
                                                                                                                                                                                                                                                       GTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTA 594
                                                                                                                                                                                                                                                                                                           GCTGGCGAACTAAAAATTTTGCCTTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGA 534
                                                                                                                                                                                                                                                                                                                                        WCWMAHACAMAMHAMMMAMAAMMWCCMMCWCYMYCTMAHTHMWHWHMWHWWHTHAHH
                                                                                                                                                                                                                                                                                                                                                                                                                  GGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCA 414
                                                                                                                                                                                                                                                                                                                                                                                                                                             AATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAA 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTCAHCHCTMMAYMMYMYMHMYYYCYMYCYTYMYYCTCYCHCYCCCCYCYMVHMATMTM 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTGAAAGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTTCTCACAATACA 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MCMYCYYYCTCTYCYCYYNYCMWAAAHHACAKAAMWAMSHWMYMWCWCHCHTMMMHCTMH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        195
             sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Drosophila melanogaster"
/mol_type="genomic DNA"
/mb_xref="taxon:7227"
/clone="BACNO3G04"
/clone="bbcNO3G04"
/clone_lib="DrosBAC"
/plasmid="pBeloBAC11"
/note="end : SP6"
i a 108 c 131 g 161 t 506 ot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                            mRNA sequence.
                                                                                         Homo sapiens THYMUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                     GI:30767520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 59.4;
Pred. No. 1
                                                                                                        1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ed. No. 12;
Mismatches
                                                                                                                                                                           463
                                                                                          Бр
Ното
                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
                                                                                            CDNA
                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      others
                                                                                            clone CS0CAP004YG19
Euteleostomi;
                                                                                                        EST 15-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                               488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        806
                                                                                                                                                                                                                                                                                                                                                                                          899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                    RESULT 3
BX415878
                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                          SOURCE
                                     KEYWORDS
                                                   VERSION
                                                                ACCESSION
                                                                                          DEFINITION
                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Best I
            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
                                                                                                                                                                           955
                                                                                                                                                                                                                                                                                   835
                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                            244
                                                                                                                                                                                                                                                                                                                                                                                          715
                                                                                                                                                                                                                                                                                                                                                                                                                    124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                5-PRIME,
BX415878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                        EST
                                                                                         BX415878
Eukaryota;
             HOMO
                                                   BX415878.1
                                                                                                      BX415878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    454
           sapiens
Metazoa; Chordata; Craniata; Vertebrata;
```

```
Mammalia; Eutheria; Primates; Catarrhini; Ho
1 (bases 1 to 1056)
Li,W.B., Gruber,C., Jessee,J. and Polayes,D.
Full-length cDNA libraries and normalization
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: segref@genoscope.cns.fr, Web: www.genoscope.cns.fr
Library was constructed by Life Technologies, a division of
Invitrogen. Contact: Feng Liang Email: fliang@lifetech.com t
http://fulllength.invitrogen.com/ InVitroGen Corporation 1600
Faraday Avenue Genoscope sequence ID: CSOCAPOO4AD10NP1.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Genoscope
                                                                                                                                                                                                                                                        CAATTATTGTTCAAAAGTGTTAA 386
                                                                                                                                                                                                                                                                                                                                                       TTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                      GCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATACTCTGTATGATAGGATGACTTTTTTATGTTTTTCTCTCACAATACACTTAATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATAAGATTTTATTTTTACATTGTTTTTTCTCTTCAGTACTTTTTACATTTGCTGTA
                                                                                                                                                                                                                                TTTTTTATTAGGAAGGGTTTWAA
                                                                                                                                                                                                                                                                                                                WWWWWWAWWWWAWWWAAAAAAATTTTWTAAWTTTTATAAWWWAAAATTGTTTRWAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTWATADWDATWAAWTATWTWTRTGKAGWWAAAAAKTKATAKKTKTKTAWAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACGAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAWAAWTTTTGWAAWATGTTTTTTKTTWTTWTTWAWATATTTTWTATADATRTKTTT
sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                 mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /Clone="CSOCAP004YG19"
/tissue_type="THYMUS"
/clone_lib="Homo saplens THYMUS"
/clone_lib="Homo saplens THYMUS"
/note="Vector: pcCMVSPORT_6; 1st strand cDNA was primed /note="Vector: pcMVSPORT_6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned in the Not I and EcoRV sites of the pcMVSPORT 6 vector.
                                                                                                       Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Library was not normalized.'
53 c 56 g 318 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
                                           GI:30765550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.1%;
                                                                               sapiens THYMUS sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 55;
Pred. No.
                                                                                                                        1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                977
                                                                                                       Homo
                                                                                                                        ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55;
                                                                                                   sapiens
                                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               188; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1056;
                                                                                                     cDNA clone
                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    others
                                                                                                     EST 15-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   URL
                                                                                                                                                                                                                                                                                                                                                         363
                                                                                                                                                                                                                                                                                                                                                                                                894
                                                                                                                                                                                                                                                                                                                                                                                                                                         303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                  954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

Euteleostomi;

```
8
                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
COMMENT
                                    Š
                                                                                                            δÃ
                                                                                                                                                      ₽
                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
  밁
                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                482
                                                                                                                                                                                            422
                                                                                                                                                                                                                                761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
Contact: Genoscope
Genoscope - Centre National de Sequencage
Genoscope - Centre National de Sequencage
Bp 191 91006 EVRY cedex - France
Email: seqref@genoscope.cns.fr, Web: www.genoscope.cns.fr
Library was constructed by Life Technologies, a division (
Invitrogen. Contact: Feng Ling Email: fliang@lifetech.
http://fulllength.invitrogen.com/ InVitroGen Corporation.
Faraday Avenue Genoscope sequence ID: CSOCAP008BE02QP1.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia; Eutheria; Primates; Catarrhini; Hominidae; lbases_1 to 1200)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTTCTCACAATACACTTAATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGG 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATAAGATTTTATTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTA
                                                                                                                                                                                                                                TAWDCATAAAATATWAWTWTAWTAAATATTTWAWAATWACAAAAATWAAAAAAAWTTTAA
                                                                                                                                                                                                                                                                                                                                            CATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATA
                                                                                                                                                                                                                                                                                                                                                                                    ATWAATATAAATATTAAWTWRAWWAAWTWATATWTTTTTTAATTAGATTAATATATATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACGAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAATTTATTWAWTTTAATTATTTTTAAAAATTWTTTTAATTTTAAAAWTTWWATAWWWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AADCTTAWTWTTWHCCATSTTTSCTTTTAMAAATTTTTBBSSTWATATTTTATTTATTA 460
                                    GACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATA
                                                                          TAAWTAAAATTASAAAAWTTTTTTTTTTTTATTTWAATTTWAATWTTTTTTWWAWA
                                                                                                              AACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAA 541
                                                                                                                                                      TTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTATATATTCCTGCTGGCG
                                                                                                                                                                                                                                                                  AACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATT
                                                                                                                                                                                                                                                                                                        AATTTTATTWTATTWAATWWWAWTTTTTWAYAAGAAAWTATTAATACATANATATATATA
                                                                                                                                                                                                                                                                                                                                                                                                                          GCATGTCCAACCAGTGA--GAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="Homo sapiens THYMUS"
/note="Vector: pcMvSpORT_5; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned if the Not I and ECORV sites of the pCMVSPORT 6 vector. Library was not normalized."

10 c 85 g 447 t 170 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9606"
/clone="CS0CAP008YI04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.8%;
35.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      type="THYMUS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 52;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.5e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        331;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s fr
on of
ch.com URL :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                          940
                                                                                                                                                      880
                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                    700
                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                              640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
CNS0039G/c
                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                       Ş
                                                                                                        Ş
                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                      밁
                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Determination of this BAC-en' sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitily.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial ECORI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp, the same strain used for the BDGP's pand how to order individual BAC clones, the entire library and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be received.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1000
                                                                                                                                                                                                                                                  1038
                                                                                                                                                                                                                                                                                                                                   1098 RRWGDDTWDRDTRKDDWDWTKWWTWWKDRADDRRWAGDADRWAWDDGAGTWWTATWWWWW 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                             978
                                                                                                                                                                                                                                                                                       199 AGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGT
                                                                                                                                                                                                                                                                                                                                                                             139 AAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGAT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL063921
AL063921.1
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster genome survey sequence BACROBKIO of RPCI-98 library from Drosophila fly), genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (02-JUN-1999) Genoscope - Centre BP 191 91006 EVRY cedex - FRANCE (E-mail: - Web: www.genoscope.cns.fr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygo
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CNS0039G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drosophila melanogaster (fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                DGAGDKDDDGKGKDADDDTDGTKDDDDKDKWDDWDKAKGTWGDATWAWAATDWWWWGWA
                                                                                                                                                                                               GAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAA 318
                    AGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGT
                                                                                                          AAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAAGGCTATAAACAATTATTGTTCAAA 378
                                                                                                                                                        RDGGRKRKDKKDRKDGDDDKKGGKKKKAAKAAKWATKWWDDWDWDKDWKWDGAKDRKADD
                                                                                                                                                                                                                                              WWWATWDTWWDKWWWWATAAKTDTAWTWWRTAWRADWAGRDRGAGKRDRDAATDADGAGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATWWAWWTWTAAAAWTWTATTTWWTWTAAAAAAAAATT 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          201
                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="genomic DNA
/mol_type="genomic Z7"
/db_xref="taxon:7227"
/clone="BaCR08K10"
/clone_lib="ReCI-98"
/note="end : TET3"
/note="end : TET3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Drosophila m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:4941778
                                                                                                                                                                                                                                                                                                                                                                                                                                                4.8%; Score 51.6;
16.1%; Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                           280;
···
                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA linear GSS 03-JUN-1999
survey sequence TET3 end of BAC #
rom Drosophila melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         melanogaster'
                                                                                                                                                                                                                                                                                                                                                                                                                                           ; DB 29;
l.7e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
                                                                                                                                                                                                                                                                                                                                                                                                                              319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Insecta; Pterygota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              National de Sequencage segref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        others
                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                   859
                         438
                                                                                                                                                        919
                                                                                                                                                                                                                                              979
                                                                                                                                                                                                                                                                                          258
```

0

410

470 409

```
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
CD386564
LOCUS
                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MENT
                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       499
                                                                                                                                                                                                                                                                                                                                                                                                                   National Cancer Institute / NIH
Bldg. 31 Rm10A07 Bethesda, MD 20892
Email: cgpabs-remail.nih.gov
Tissue Procurement: Dr. Jamie Thompson, University of WI
cDNA Library Preparation: Gina Zastrow-Hayes
cDNA Library Preparation: Gina Zastrow-Hayes
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                       http://image.llnl.gov
Plate: NDKM74 row: e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Daniela S. Gerhard, Ph.D. Office of Cancer Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NIH-MGC http://mgc.nci.nih.gov/.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1. (bases 1 to 1067)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1067 bp mRNA linear EST 30-MAY-2003 AGENCOURT_14286445 NIH_MGC_173 Homo sapiens cDNA 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CD386564.1 GI:31222277
                                                                                                                                                                                                                                                                                                                                                                                                 found through the I.M.A.G.E. Consortium/LINL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACTTTGTCACTTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGGATATAGTACTAAC 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DWKTRADRWDRWAADTWTDARKADRDWAKARAWRARRDRARAARADRRWTTKGKTTTATW 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TAGRKWRRTWKRRWKRRDTRWDDADADDTARDDRRRRGDDGADAGKGKKTGRKRRRRDRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCTTCAGGTGCAAGTTTATATTTATATTTCCTGCTGGCGAACTAAAAAATTTGCCT 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WTAAAWAAAAAAAAATTTTTTTTTTTWAWTAAAWWTAWTWTTTTWTTTTWWAATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAACTTGCGTCCAACTGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TWDRTDAWWADAAWWTTTDTDTDDWDKRDRRRKGARRRRTTARAAWDWWTWKAWDWAKW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATTCAGATA 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACGATATAGTGAGACC 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RADDKRDAADDRDDAATWTTWTTTTTRDTDDWKWKTDTWTRWAADRTWDRDDDDDRDRAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DADWWTWDAAADDWWADDRWDAWAWKWDDAWAWGARTADRRDWGDRAGKRGGARKRRDRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAATTTTAT 798
                 533
                                                                                                                                                                                                                                                                            e: NDKM74 row: e column: 02
quality sequence start: 8
quality sequence stop: 462.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens (human)
                 ø
/clone_liber_WIH_MGC_173"
/clone_liber_WIH_MGC_173"
/notes="Vector: pDouR201; Site_1: attp2; Site_2
/IBR_PRIMING - oligo dT; METHOD - full-length
LIBR PROVIDER - Bradfield"
a 85 c 75 g 333 t 41 others
                                                                                                                                 /db_xref="taxon:9606"
/tissue_type="Trophoblast"
/lab_host="DH10B TonA"
                                                                                                                                                                                                       /organism="Homo sapiens"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalian Gene Collection (MGC
                                                                                  Site_2: attP1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 30-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     852
                                                                                                                                                                                                                                                                                                                                                                                                                          þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 6
CNSOOFVE/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                 source
                                                                                                                                                                                          Submitted (02-70N-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr)
- Web : www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP).
The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPC1-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; cn bw sp, the same strain used for the BDGP's and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             290 AAACAAATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster genome survey sequence TET3 end of BAC: EACR32P18 of RPCI-98 library from Drosophila melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genoscope.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CNS00FVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster (fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL071298.1 GI:4951138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCCATCCGGCCTAACACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGT 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 1101)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                           at http://bacpac.med.buffalo.edu/drosophila_bac.htm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genomic survey sequence.
         /clone="BACR32P18"
/clone_lib="RPCI-98"
                                                         /db_xref="taxon:7227"
                                                                                                                                                       Location/Qualifiers
                                                                               /mol_type="genomic
                                                                                                      ∕organism="Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 51.2; DB
Pred. No. 2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1101 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                        melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1067;
```

GSS 03-JUN-1999 end of BAC:

650 589 529

of a

밁 õ 밁 δÃ ₽ 밁 Ş 밁 Ş В δÃ 밁 Š

٠,

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                         FEATURES
                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                               ERSION
                                                                                                                                                                                                                                                                                                                                                                                   URCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                          EYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        262
                                                                                  - Web: www.genoscope.cns.fr)
- Web: www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) - http://www.edgp.ebi.ac.uk - This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etude du Polymorphisme Humain) with funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22
                                                                                                                                                                                                                                                                                                                                                                                   Drosophila melanogaster (fruit fly)
Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIY), genomic survey sequence.
ALIO6171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila melanogaster genome survey sequence SP6 end of BAC BACN15C18 of DrosBAC library from Drosophila melanogaster (fruit
                                                                                                                                                                                                                                      Submitted (23-JUL-1999) Genoscope - Centre National de Sequencage BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fi
                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota; Meoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases 1 to 1225)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CNS0161D
                                                                                                                                                                                                                                                                            Direct Submission
                                                                                                                                                                                                                                                                                              Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                             AL106171.1 GI:5620504
                                                                          pBeloBAC11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATWWAGTKTWGWGKWTWKDAAWKTWWTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTAACTGCCCATCCGGCCTAACACTTTAACTCAGCTCATTTTAACTGTAATAAAAAACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATAGG 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAKGTWAGRRGGATAAAAWATATKATWAKRGKTTADDTDGKAWWWDWATWWWGARDGKAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TWWTWDKAWTTTTTKGTTTTTAGTGKWTWTGRAWTTTKGWAATDGDTADRATWAAT 994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCGGCAGATAAAATTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAWWKTAKWGGAAWKWATTWTDTRATAWAWKWAAATWATTTTKAATAWAADATTWAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAAGT 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAAAAA 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAACGAATCTTCCCCCAAA 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTTCAGGTGCAAGTTTATATTTATATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATRWGATTRATTDAATAGATTTGWWKGTKTAWAWWTKKAWKTTWGWAAWTTATTGTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AWWKATTTAWAGTWTTGRAADGAWGWDWGTKDADGRTDADAAAWDADAAWAWAGWWDWWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACTTTTTTATGTTTGTCTCTCACAATACACTTAATGGAGCATGTCCAACCAGTGAG 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WATAAWDGRWTTWATAAKGTWTWTTTGGGGKGGGAWGATWAAAKGRTDAWWAKGAGGGGA 874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="end : TET3"
1 223 c 31 g
 /organism="Drosophila
/mol_type="genomic DN1
                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 51;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1225 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
11a melanogaster"
DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                396 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSS 26-JUL-1999
and of BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81
```

```
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE C
                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BX436282/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Sin
Matches 119;
                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNT
                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BX436282
BX436282
5-PRIME,
BX436282
                                                                                                                                                                                                               Email: segref@genoscope.cns.fr, Web: www.genoscope.cns.fr
Library was constructed by Life Technologies, a division of
Invitrogen. Contact: Feng Liang Email: fliang@lifetech.co
http://fulllength.invitrogen.com/ InVitroGen Corporation 10
                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates; 1 (bases 1 to 1124)
                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                 Genoscope - Centre National de Se
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                  Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                Li, W.B., Gruber, C., Jessee
Full-length cDNA libraries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BX436282.1
                                                                                                                                                                                                     Faraday
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAAACAAATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGA----TGCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTTWTWTWWWWTWTWWWAAAATMAWAAAATATWATWA 1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTATTAAATTAACTGATAAGGGAAATATTCAGATATGGTTA 624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TARARAAAAAAAAAAAAAWWWATTYTYYYAYAWAAAYAWATAAWWAWTTWTTAAAWWAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAAGTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCA 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATWTAYTTTATATIMWAWAWWATWWTWTWTTWTTWWWTWWWTAATATTTTWTTT 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATWTTTWTTTTTTTTWTAAAAWAAAAAAAATATATTTTWTWAWWWTWTWATTTTTATA 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                Avenue Genoscope sequence ID : Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1124
2 Homo sapiens THYMUS
mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:7227"
/clone="BACN15C18"
/clone_lib="DrosBAC"
/plasmid="pBeloBAC11"
/note="end : Sp6"
a 128 c 38 g
/Organism="Homo sapiens"
/mol_type="mRNA"
/mol_type="mRNA"
/db_xref="taxon:9606"
/db_xref="taxon:9606"
/clone="CSOCAP0010YC01"
/tissue_type="THYMUS"
/clone_lib="Homo sapiens THYMUS"
/clone_lib="Homo sapiens THYMUS"
/note="Vector: pcMVSPORT_6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned i the Not I and ECORV sites of the pCMVSPORT 6 vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64;
                                                                                                                                                                                                                                                                                                                                                  Jessee, J. and Polayes, D. praries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             № 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                þ
                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                 Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 29
2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA linear EST 15-MAY-2003 sapiens cDNA clone CS0CAP001YC01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             154;
                                                                                                                                                                                                     CS0CAP001AB01QP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1225;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                   COM URL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1180
                      into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9
BX380916/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        138;
                                                                                                                                                      Eukaryota; Reconstruction of the following the following of the following the followin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
Contact: Genoscope
Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: seqref@genoscope.cns.fr, Web : www.
                                                                                                                                                                                                                                                                                                                                                                                                                                      BX380916 Homo sapiens PLACENTA COT 25-NORMALIZED I Clone CS0DI058YF18 3-PRIME, mRNA sequence.
                                                                                                           Unpublished
                                                                                                                                         Li, W.B., Gruber, C., Jessee, Full-length cDNA libraries
                                                                                                                                                                                                                                                                                                                                                                                                                    BX380916
                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                        Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                        BX380916.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAG 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u> ААЛААЛААЛАЛААЛААЛААЛААЛААЛААННҮҮҮҮҮҮНААЛАДАДАДАДАДАДАДАДАДАД</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAA 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTT 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTACAATTTACGGAAAAAAGAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAA 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGCCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGG 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATAAGATTTTATTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        НАННААЛАЛАЛАЛАЛАГУҮҮҮҮНАНҮҮҮҮҮҮҮҮҮҮХҮХҮЛАЛАЛАНҮНАМҮҮҮҮҮҮҮҮҮҮНАА
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATTATTCCTGCTGGCGAA 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACA 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGAATCTTCCCCCAAACATAATATTTAAATAACCATATTACAGCATACAGTGAAAGT 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.7%;
ilarity 21.3%;
Conservative 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Library
a 29
                                                                                                                                                                                                                                                                                                                                                                                     GI:30458907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  was not normalized."
c 109 g 435 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 50.8; DB 13;
Pred. No. 2.3e+02;
7; Mismatches 313;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                            and
                                                                                                                                            and Polayes,D.
d normalization
                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
Web : www.genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
.cns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EST 08-MAY-2003
no sapiens cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    992
```

RESULT 10 CNS0145P/c DEFINITION

rocus

CNS0145P 1043 bp Drosophila melanogaster genome sur BACN11G11 of DrosBAC library from

DNA linear GSS 26-JUL-1999 survey sequence T7 end of BAC rom Drosophila melanogaster (fruit

```
ν
                                                                                                                                                                          밁
                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1086
909
                                                                                                                                                                            726
                                                                                                                                764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Library was constructed by Life Technologies, a division of Invitrogen. This sequence belongs to sequence cluster 1083.f For more information about this cluster, see http://www.genoscope.cns.fr/cgi-bin/cluster.cgi-pin/geq=CSODIOSBDCO9NP1&cluster=1083.f. Contact Feng Liang Email : fliang@flifetech.com URL : http://fulllength.invitrogen.com/ InVitroGen Corporation 1600 Faraday Avenue Genoscope sequence ID : CSODIOSBDCO9NP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Faraday Avenue Genoscope sequence Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
TAAGAAT
                                          AAGAAAT
                                                                                                                                                                                                                                                                                                          CTCGCGTCGATCTTAACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTG
                                                                                                                                                                                                                                                                                                                                                                                                   CTATTAAATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATATATTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VAGTTMMGTTMAGMMGTTTTMVGMKTTTAWTAAAARKTTTTTTTTTTAKAAKTTTAAARA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACTTAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAARGTAAARRRWAWTTTTTMAAARNTHTTTMMGGTHWAAATMMKTTGAMTTTTHMMGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAATTAAAGGCTA--TAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAA
                                                                                    TAGGBAATWAATKATAAMTGBKTTTAMAGKSAAMAMMTAKAMAAAMAASKKAKAAGAGTG
                                                                                                                           CCMGMATKMAATKAAKMAKASTTIMMITTATAAABBMTGTTAAATKAMATTMAMAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAAGTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATTAMAKCRGMGTAAAAATGSAAKRAATYMGCRATACGAATAAYCCCCSGAMCRTWAWT
                                                                                                                                                                                                                      TTGATATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTC
                                                                                                                                                                                                                                                              ATGGGAKAAATTTTAAAAGAAAGTAATKATKATAAAKTACTSMAWATGMAAMTAMAAMTK
                                                                                                                                                                                                                                                                                                                                                       AAABTAAKATTATKAAACAMMAAKMTKAAAAKAAATGTGAAGATGAGGTTAMSHGAKAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                TTWAHTAMBYTTWTTTTTTAKTKTKAAWAAATAMABRAAAAATAAATAKKTTAATTATTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RGTTTWTTAAAAAAWAWTTTWATTWAAAAAADAAWMAARAARTTTTTTWTWARGRRRRGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="CSODIO58YF18"
/tissue_type="PLACENTA COT 25-NORMALIZED"
/tissue_type="PLACENTA COT 25-NORMALIZED"
/clone_lib="Homo sapiens PLACENTA COT 25-NORMALIZED"
/note="Ist strand cDNA was primed with a NotI-cligo(dT)
primer. Five prime end enriched, double-strand cDNA was
digested with Not I and enriched, double-strand cDNA was
digested with Not I and conto the Not I and Ecor v
sites of the pCMVSDORT 6 vector. Library was normalized
a 128 c 79 g 391 t 302 others
600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 50; DB 13;
Pred. No. 2.9e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             276; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ν
''
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345
                                                                                                                                                                                                                                                              727
                                                                                                                                                                                                                                                                                                          703
                                                                                                                                                                                                                                                                                                                                                       787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۰, <
```

```
RESULT 11
BX437039
LOCUS
            VERSION
KEYWORDS
                                                                                                                                                                                              Ş
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                 δ
                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                     Ę
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
  SOURCE
                                    ACCESSION
                                                         DEFINITION
                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
          1061 b BX437039 Homo sapiens THYMUS H 5-PRIME, mRNA sequence. BX437039 BX437039.1 GI:30789546 EST.
                                                                                                                            581
                                                                                                                                                                                                                        701
                                                                                                                                                                                                                                              191
                                                                                                                                                                                                                                                                                            131
                                                                                                                                                                                                                                                                                                                                                                                                             136;
                                                                                                                                                                                                                                                                                                                                       71
                                                                                                                                                                                                                                                                                                                                                                                      11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (23-JUL-1999) Genoscope - Centre National de Sequencage BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Drosophila melanogaster
Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ephydroidea; Drosophilidae; Drosophila.
1 (bases 1 to 1043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AL103735.1
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fly), genomic survey sequence
AL103735
                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster (fruit fly)
                                                                                                                            AAAATATTTATWAWAWAWWATAATATAWAWAAAAAWAWAWAWAAAAWATATTTWWWAW
                                                                                                                                                                                                                                                                                                               TTTTATTTATTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCGGCAG
                                                                                                                                                   AATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAA 366
                                                                                                                                                                          ATAAAWAWWWAAAAAAWATATAWATATTWTTTWATATAAAAATATATAKTAKTATT 582
                                                                                                                                                                                                GTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTAC
                                                                                                                                                                                                                                                                   CTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTC
                                                                                                                                                                                                                                                                                                                                      ATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAACGAAT 130
                                                                                                                                                                                                                                                                                                                                                              TTTTTTTTTTTTTTTTTTTTTTTTTTWTWTATWTWWATATATWTARRGGRAADDAAA
                                                                                                                                                                                                                                            TGTATGATAGGATGACTTTTTATGTTTGTCT----TCTCACAATACACTTAATGGAGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   277
sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Drosophila melanogaster"
/mol_type="genomic DNA"
/db_xref="taxon:7227"
/clone="BACN11G11"
/clone_1b="DrosBAC"
/plasmid="pBeloBAC11"
/note="end: "7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:5615346
                                                                                                                                                                                                                                                                                                                                                                                                                     4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                            48;
                                                                                                                                                                                                                                                                                                                                                                                                          Score 49; DB Pred. No. 4.3e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 g
                                                        Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   382
                                                                                                                                                                                                                                                                                                                                                                                                          4.3e+02;
ches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 29;
                                                        sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c
                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1043;
                                                        CDNA
                                                       linear E
                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   others
                                                        EST 15-MAY-2003
CSOCAPO04YH04
                                                                                                                                                                                                                                                                                                                                                                                                          ų.
                                                                                                                            523
                                                                                                                                                                                                                                                                                                                                                               822
                                                                                                                                                                                                                     642
                                                                                                                                                                                                                                            247
                                                                                                                                                                                                                                                                                          190
                                                                            RESULT 12
BX446296
                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                Š
                                                                                                                                                                         밁
                                                                                                                                                                                             Ş
                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                           밁
 SOURCE
            KEYWORDS
                     VERSION
                                ACCESSION
                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                            815
                                                                                                                                                   588
                                                                                                                                                                         755
                                                                                                                                                                                                528
                                                                                                                                                                                                                     695
                                                                                                                                                                                                                                            468
                                                                                                                                                                                                                                                                   635
                                                                                                                                                                                                                                                                                          408
                                                                                                                                                                                                                                                                                                                575
                                                                                                                                                                                                                                                                                                                                       348
          BX446296.1
EST.
                                BX446296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479
sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .1061
```

```
Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: segref@genoscope.cns.fr Web : www.genoscope.cns.fr
Library was constructed by Life Technologies, a division of
Invitrogen. This sequence belongs to sequence cluster 7009.f For
more information about this cluster, see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Feng Liang Email : fliang@lifetech.com URL : http://fulllength.invitrogen.com/ InVitroGen Corporation Faraday Avenue Genoscope sequence ID : CSOCAPOO4DDO2QP1.
                      BX446296 1201 bp mRNA linear BX446296 Homo sapiens NEUROBLASTOMA Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          http://www.genoscope.cns.fr/
cgi-bin/cluster.cgi?seq=CSOCAPO04DD02QPl&cluster=7009.f. Contact :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \text{Li}, \dot{W}.B., \text{Gruber}, \text{C.}, \text{Jessee}, \text{J.} and \text{Polayes}, \text{D.} Full-length cDNA libraries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1061)
XCL0BB001ZA03 3-PRIME,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAAACAAATATAACATTACAATTTACGGAAAAAAGAGAGTTTAATAAAAAGAGAGCTACA
                                                                                                                                                                                         AATAAAAATAAAATAAAWATAAATANA
                                                                                                                                                                                                                                                                                               WTWATATATAAATATWTAAAATAAWAAAAATAATTAAAWTAAYAAAATATAAWTTAAAAT
                                                                                                                                                                                                                                                                                                                                   GTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATA 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WAMAAAAAAAAAAAWATTAAATWTTTAAATAATAAATAATATTTTWAAAAAWTAAATA 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAAATTAACTGATAAGGGAAATATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                   TATTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAA 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="THYMUS"
/clone_lib="Homo sapiens THYMUS"
/clone_lib="Homo sapiens THYMUS"
/note="Vector: pcMvSPORT_6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned the Not I and EcoRV sites of the pcMvSPORT 6 vector.
Library was not normalized."

164 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mol_type="mRNA"
/db yraf-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="CS0CAP004YH04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 49;
Pred. No.
  mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 13;
4.3e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                 linear
                           CDNA
                                                    EST 15-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                           clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primed
                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              694
                                                                                                                                                                                                                                                                                                                                                                                                   754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 into
                                                                                                                                                                                                                                                                                               814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                    RESULT 13
BX355654/c
                                                                                                                                                                                                                                                                                                                                                                                                                ρ
    SOURCE
                                             ACCESSION
                                                                         DEFINITION
                                                                                                                                                            밁
                                                                                                                                                                                  Š
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                        뮹
                                                                                                                                                                                                                                                                                              ρ
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                       무
                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                 KEYWORDS
                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Best I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match
                                                                                                                                                                                                                   452
                                                                                                                                                                                                                                                                                                                                  332
                                                                                                                                                            512
                                                                                                                                                                                       371
                                                                                                                                                                                                                                               311
                                                                                                                                                                                                                                                                                                      251
                                                                                                                                                                                                                                                                                                                                                           191
                                                                                                                                                                                                                                                                                                                                                                                        272
                                                                                                                                                                                                                                                                                                                                                                                                                 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 TTTTATTTTATTTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71 ATAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGGAACGAAT 130
                               BX355654
BX355654.1
                                                         BX355654 Homo sapiens PLACE clone CS0DI002YE12 3-PRIME,
                                                                                       BX355654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: segref@genoscope.cns.fr, Web: www.genoscope.cns.fr
Library was constructed by Life Technologies, a division of
Invitrogen. Contact: Feng Liang Email: fliang@lifetech.com
http://fulllength.invitrogen.com/ Invitrogen Corporation 1600
Faraday Avenue Genoscope sequence ID: XCLOBBOO1ZAO3FF1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genoscope - Centre National de Se
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Li,W.B., Gruber,C., Jessee,
Full-length cDNA libraries
    HOMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                       CTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTC 190
                                                                                                                                                            GRGGRAAAA 520
                                                                                                                                                                                     TGTTCAAAA
                                                                                                                                                                                                                CAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAAT 310
                                                                                                                                                                                                                                                                                                                               TGTATGATAGGATGACTTTTTATGTTTTGTCTTCTCACAATACACTTAATGGAGCATGTC 250
                                                                                                                                                                                                                                            TTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTAT 370
                                                                                                                                                                                                                                                                       инимаминиминиминиминиминиминимамаматтааамаааамааааааааааат 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 malia; bu....
(bases 1 to 1201)
(bases 7 to 1201)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                663
  sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /Organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
/clone="xCLOBB001ZA03"
/tissue_type="NEUROBLASTOMA"
/tissue_type="NEUROBLASTOMA"
/clone_lib="Homo sapiens NEUROBLASTOMA"
/note="Yector: pCMVSPORT_6; lst strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned int the Not I and ECORV slites of the pCMVSPORT 6 vector.
Library was not normalized."
63 a 37 c 191 g 116 t 194 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Metazoa;
                                                                                                                                                                                       379
                               GI:30371982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.5%;
                                                                   1201 bp mRNA linear sapiens PLACENTA COT 25-NORMALIZED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 48.6; DB 13;
Pred. No. 4.7e+02;
3; Mismatches 187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                        mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Polayes, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequencage
                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                      Homo
                                                                                  EST 05-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                     sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        URL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       into
           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                 RESULT 14
CNS0039G
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                            KEYWORDS
                                                                                                                                          VERSION
                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                466
                                                                                                                                                                                                                                                                                                                                                                       406
Submitted
```

```
1021 НИТИТТТМАТНТИТТТННАТТТWААТТWWTWWTTTAAATTAAATTWTTMATWHATTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141 MATHMATHTTTMMMMTTTTMMATWTTWWHWAMAAAMATTWATAATMMAAAMMTTMCM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1201 НМММАМММАНММММММАЖТТТЖАЖААМААТТААЖАТТТААМААТТТЖАЖАТТНННАН
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    226 CACAATACACTTAATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Library was constructed by Life Technologies, a division of Invitrogen. Contact: Feng Liang Email: fliang@lifetech.com URL http://fulllength.invitrogen.com/ InVitroGen Corporation 1600 Faraday Avenue Genoscope sequence ID: CSODIOOZBC06NP1. 1.01201
                                                                                                                                                         Drosophila melanogaster (fruit
Drosophila melanogaster
                                                                                                                                                                                                                                                                                                  Drosophila melanogaster genome sur BACR08K10 of RPCI-98 library from
                                                                                                                                                                                                                                                                                                                                             CNS0039G
                                               Genoscope.
                                                                                         Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                        fly), genomic
AL063921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata;
Mammalla; Eutheria; Primates;
1 (bases 1 to 1201)
Li,W.B., Gruber,C., Jessee,J.
                            Direct
                                                                                                                                                                                                                                  AL063921.1 GI:4941778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Full-length cDNA libraries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TA 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTGAAACAAATATAACATTTACAATTTACGGAAAAAAGAAGTTTAATAAAAAAGAGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTA
                                                                    (bases 1 to 1101)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                          Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="PLACENTA COT 25-NORMALIZED"
/Clone_lib="Homo sapiens PLACENTA COT 25-NORMALIZED"
/Clone_tist strand cDNA was primed with a NotI-oligo(dT)
/note="1st strand cDNA was primed with a NotI-oligo(dT)
primer. Five prime end enriched, double-strand cDNA was
digested with Not I and cloned into the Not I and EcoR v
sites of the PCMYSPORT 6 vector. Library was normalized.
a 49 c 96 g 240 t 323 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="CS0DI002YE12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
    (02-JUN-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.5%;
29.3%;
                                                                                                                                                                                                                                                                             survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                type-"mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jessee, J. and Polayes, D.
                                                                                                                                                                                                                                                                        sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 48.4; DB Pred. No. 5e+02;
    Genoscope
                                                                                                                                                                                                                                                                                                                                               1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                   fly)
                                                                                                                                                                                                                                                                                              p DNA linear GSS 03-JUN-1999
survey sequence TET3 end of BAC #
rom Drosophila melanogaster (fruit
    •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 13;
    Centre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99;
  National
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1201;
    de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

```
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                         RESULT 15
CD389151
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                        1032 НИАТИМИМИМИМИАТАМИАСТСИНИТИЧИТИСТИЧУНИТУНИМИМАМИ 1077
                                                                                                                                                                                                                                                                                        425
                                                                                                                                                                                                                                                                                                                                                                                                                                      912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 305 TACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAAGCCTATAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                852 WAWWHTHTWCWWWWHATTWTWATHCWACMTMHWHHWMHMHHHHMACHAHHHTHMCMCHHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245 CATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACAT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185 ATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125 ACGAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAAAGTC 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        672 ТНАҮНЖАТҮНҮҮҮҮМҮСАМИСМСТНТСИНСҮҮҮҮННҮТАННТНТИНЖҮАНҮҮМЖҮҮМЖАҮ 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612 НТУАМИНМИТМИМТМИМИМИНТТУТААУУУУУГСМУУУНУМИННАНАНАААММТТИТЫМ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65 CGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGGA 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Determination of this BBC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Manmoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp, the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library
                                                                 931 bp n
AGENCOURT_14305279 NIH_MGC_173 Homo
CD389151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5 ATAAGATTTTATTTTTTTTTTTTTTTTTTTTTTTTCTCTTCAGTACTTTTTACATTTGCTGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64;
                    CD389151.1 GI:31227751
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can l found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                    МНСТСНИНТМУ НМТСНИМИНИНИНИНИМИАТИМТТМТТМОММССМИНННСНМУ НМИНИ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ҮММҮСТАСТҮНҮННННҮНЖАҮНТТЖҮАЖАНАМММИНАНҮААААМААЖАТТННҮННТТ
                                                                                                                                                                                                                                                                                   ACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATAT 470
                                                                                                                                                                                                                                                                                                                                       YMYCCHYYCTCHTHATTHYHYMCTCYHYCTWHTYWTAYWWAWTAHAMTTATWWWWMHWWA
                                                                                                                                                                                                                                                                                                                                                                                    AATTATTGTTCAAAAGTGTTAACTGCCCCATCCGGCCTAACACTTAACTCAGCTCATTTTA 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               НҰМНТҰМҰНҰҰМҰТССҰМСТҰНСМНҰҰНТАҰТСФТФТННФМФТФТНФҰННТФФННТТТН
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191 91006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     www.genoscope.cns.fr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="RPCI-98"
/note="end : TET3"
64 c 131 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:7227"
/clone="BACR08K10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol_type="genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Drosophila melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.4%; Score 48;
13.7%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 29; Length 1101;
                                                                                            mRNA linear I
o sapiens cDNA 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    503 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                          EST 30-MAY-2003
, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 part of a
                                                                                                                                                                                                                                                                                                                                       1031
                                                                                                                                                                                                                                                                                                                                                                                                                                    971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     671
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                            밁
                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
845 TANTANNNTTNNNANTAAAAAAAAAAATTATTTCTTCTCCNNCAAAA
                                                                          590 AATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAA 637
                                                                                                                                                            530 TAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTA 589
                                                                                                                                                                                                                                                                                                                    470 TTCCTGCTGGCGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             410 ACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATA 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350 TTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTA 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA Library Preparation: Gina Zastrow-Hayes
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: NDKM70 row: h column: 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Daniela S. Gerhard, Ph.D. Office of Cancer Genomics National Cancer Institute / NIH Bldg. 31 Rm10A07 Bethesda, MD 20892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutele Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 931)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Jamie Thompson, University of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    High quality sequence start: 7 High quality sequence stop: 617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism= news news / 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 47.6; DB 14;
Pred. No. 7.4e+02;
0; Mismatches 211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 931;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          þe
                                                                                                                                                            844
```

Search completed: August 25, Job time : 2247 secs

2003, 18:46:30

This Page Blank (uspto)

```
Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nimum DB seq
ximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     298
39
                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                  38.2
38.2
38.2
38.2
38.2
37.4
36.6
                                                                                                                                                                                                                                                                                                                                                                                                           is derived by analysis of the total
   nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    August 25, 2003, 16:50:57; Search time 90 Seconds (without alignments) 5326.023 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         569978 seqs, 220691566 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-839-894-9
1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atgaataagattttatttat.....caagtagtcaaacactctag 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compus
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cgn2_6/ptodata/1/ina/5a_COMB.seq: *
/cgn2_6/ptodata/1/ina/5B_COMB.seq: *
/cgn2_6/ptodata/1/ina/6A_COMB.seq: *
/cgn2_6/ptodata/1/ina/6B_COMB.seq: *
/cgn2_6/ptodata/1/ina/BCTUS_COMB.seq: *
/cgn2_6/ptodata/1/ina/backfiles1.seq: *
                                      15016
319608
319608
319608
1689
1689
1689
                                                                                                                                    Eength
                                                                                                                                                                                                                                                                                     10640
342
                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                   4 US-09-685-853A-3

4 US-09-417-485D-5

4 US-09-601-198-115

1 US-08-764-100-16

1 US-08-764-100-24

1 US-08-764-100-24

1 US-08-916-4218-1
                                                                                                                                                                                                 US-09-495-050A-48
5168051-9
US-09-463-962-1
                       US-09-404-879A-2
US-09-338-933-2
US-09-215-6812-2
US-09-215-681-37
US-09-338-933-137
US-09-315-681-137
US-09-601-198-60
US-09-539-333D-1
US-09-679-409-1
US-09-679-409-1
US-09-679-409-1
US-07-991-867B-41
US-09-370-861A-74
US-07-991-867B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                score distribution
                                                         Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 137, App
Sequence 137, App
Sequence 137, App
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 41, Appli
Sequence 41, Appli
                                                                                                                                                                                                          Sequence 1, Appli
Sequence 3, Appli
Sequence 1, Appli
Sequence 115, Appl
Sequence 16, Appl
Sequence 14, Appli
Sequence 20, Appli
Sequence 2, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
                                                                                                                                                                                                             Sequence '
Patent No.
                                                                                                                                                                                                                                                                                                                                                  Description
                        Sequence
Sequence
Sequence
 Sequence
Sequence
60, Appli
1, Appli
41, Appli
41, Appli
41, Appli
41, Appli
74, Appli
11, Appli
11, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-483-101-1
                         FEATURE:
                                                             FEATURE:
```

Result

ŏ

0000000

Database

•	O	ი							ი	ဂ		O	a	G			
44 i	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28
34.4	34.4	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.8	34.8	35	:3:5	35.4	35.4	35.4	35.4	35.6
3.2	з 2	з 2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3 .2	ω ω	ω	ω . ω	ω ω	3.3
801	195	1664976	4838	4323	4011	4011	4011	4011	612	337	11770	1491	197496	169998	162450	2826	19124
4	4	4	ω	4	u	N	N	L	4	N	4	4	4	4	4	4	N
US-09-134-001C-1507	US-09-328-352-1980	US-08-916-421B-1	US-08-852-629-15	US-09-620-312D-134	PCT-US93-09704A-3	US-09-121-396-3	US-08-509-187D-3	US-08-121-057-3	US-09-107-532A-1950	US-09-032-684-11	US-08-961-527-172	US-09-134-001C-866	US-09-877-177A-10	US-09-676-610B-24	US-09-345-882-1	US-08-624-655A-1	US-08-487-826B-13
Sequence 1507, Ap	8.	Sequence 1, Appli	15,	134	ω	ω	•••	Sequence 3, Appli		Sequence 11, Appl		Sequence 866, App	Sequence 10, Appl	Sequence 24, Appl	Sequence 1, Appli	1, A	Sequence 13, Appl

ALIGNMENTS

```
ATTORNET/AGENT INFORMATION:
NAME: Ferber, Donna M.
REGISTRATION NUMBER: 3878
REFERENCE/DOCKET NUMBER: 6-95
TELECOMMUNICATION INFORMATION:
TELEPHONE: (303) 499-8080
TELEFAX: (303) 499-8089
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 5798 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: circular
MOLECULE TYPE: DNA (genomic)
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application US/08483101 Patent No. 5932715 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/483,101
FILING DATE: 07-JUN-1995
CLASSIFICATION: 424
CCLASSIFICATION: 424
                                                                                                                          ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Scott, June R. APPLICANT: Froehlich, Bar APPLICANT: Caron, Judy TITLE OF INVENTION: CS2 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                     NAME/KEY:
 NAME/KEY:
                                                                                                              ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U:
ZIP: 80303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Boulder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: Greenlee and Winner, P.C.
5370 Manhattan Circle, Suite 201
                                                     CDS
499..1215
sig_peptide
499..552
                                                                                                              Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CS2 Proteins
17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barbara
                                                                                                              coli
                                                                                                                                                                                                                                                                                                                                                                                6-95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Coding Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Version
```

5176

5296

```
Ş
                                                                                                         밁
                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; NAME/KEY:
; LOCATION:
US-08-483-101-1
 Ş
                                    밁
                                                                                                                                                                            ₽
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 27.5%;
Best Local Similarity 58.5%;
Matches 566; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
FEATURE:
NAME/KEY:
LOCATION:
FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY:
                                      5057
                                                                                                          4997
                                                                                                                                                                            4937
                                                                                                                                                                                                                                                4877
                                                                                                                                                                                                                                                                                                                   4817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4643
                                                                                                                                         538
                                                                                                                                                                                                              478
                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATCTTCCCCCAAACATAATATATATAAATAACCATATTACAGCATACAGTGAAAGTCAT 186
                                                                                                                         AAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATACT
                                                                                                                                                                                              GGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTA 537
                                                                                                                                                                                                                                                                   CATTITAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCT
                                                                                                                                                                                                                                                                                                                                         TTATTGTTCAAAAGTGTTAACTGC------CCATCCGGCCTAACACTTAACTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                   ATATTTACTGAAAAGAAAAGTCTGGCCAGAAAAACATTAAACTTAAAAGGATATAAGAGA 4816
                                                                                                                                                                                                                                                                                                                                                                                                       CAATTTACGGAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAA 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCATCGTATCCTGCTCATTATATATTTCATGAACATGTTGCTGGTTACAATAAAGATCAC
 AACTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTT
                                                                    GATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTT 657
                                                                                                                                                                          GGTGAAATTGATGGGCTTCTAACTGGAGGTATATGGGAGGCAACACTAGAGTTACGAGTC
                                                                                                                                                                                                                                             ACTGTTAAATGTGTAGGTTCATTCACAAGAGGAGTAGATTTCACTTTATATATCCCCACAA 4936
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTCCGACAGGAGAAAACTCCA-----AATCCTCTCAAGGGGAGACTAATATTAAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTA
                                  GACAAAGGAAATATTCAGGTCTGGACACCAAAGTTTCATAGCGATCCTAGAATTGATCTG
                                                                                                       AAAAGGCATTACGACTATAATCATGGTACTTACAAAGTTAATATCACAGTTGATTTGACA
                                                                                                                                                                                                                                                                                                                  TTTTTATATGAATCAGATAGATGCATTCATTATGTCGATAAAATGAATCTCAATTCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
4451..5545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mat_peptide
4505..5542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sig_peptide
4451..4504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sig_peptide
1836..1913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mat_peptide
1324..1764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sig_peptide
1255..1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
1255..1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mat_peptide
1914..4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1836..4436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mat_peptide
553..1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 298.8; DB 2; Length Pred. No. 7.7e-70; 0; Mismatches 387; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                         597
                                                                                                                                                                            4996
                                  5116
                                                                                                                                                                                                                                                                                                                  4876
                                                                                                                                                                                                                                                                                                                                                                                                                                                          4756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4702
                                                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4642
                              δõ
                                                                                                ρ
 밁
                                                                   밁
                                                                                                                                       밁
                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 2
US-09-685-853A-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                               ; NAME/KEY: misc_feature
; LOCATION: (1)...(74962)
; OTHER INFORMATION: n = A,T,C or
US-09-685-853A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                          Query Match
Best Local s
Matches 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 3, Application US/09685853A
PATENT NO. 64/9270
GENERAL INFORMATION:
APPLICANT: WEI, Ming-Hui et al.
TITLE OF INVENTION: ISOLATED HUMAN PHOSPHATASE PROTEINS,
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN PHOSPHATASE PROTEINS,
TITLE OF INVENTION: AND USES THEREOF
FILE REFERENCE: CL000871
                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: FastSEQ for Windows Version SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/685, CURRENT FILING DATE: 2002-05-06 PRIOR APPLICATION NUMBER: 60/182,194 PRIOR FILING DATE: 2000-02-14 NUMBER OF SEQ ID NOS: 3
                                                                                                                                                                                                                                                                                                                                                               LENGTH: 74962
TYPE: DNA
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                      43091
                                                                   43151 ATCAGTGTTTTGGGATATTCCTTTTTAATAACTAGTTTTAATAAACTAAATATGGTGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5117 AATTTACGTCCTGAAGGTAATGGTAATATTCTGGTAGTAACGTGCTTGAGATGTGTCTC
                                                                                                                                                                          105
                                                                                                       165
                                                                                                                                                                                                         tch 3.7%; al Similarity 46.8%; 125; Conservative
                   TCACAATACACTTAATGGAGCATGTCCAACCAGTGAGAATCCTAGCAGTTCATCGGTCAG
AAAAAAAACACTACAAAAGTAAAGAGTCAGCCCTCCATATCCAAGAATTTCATACCTGTG
                                                                                                   TACAGCATACAGTGAAAGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTGTCTTC
                                                                                                                                                                        TTTTGGCCCGCGTGACAGGAACGAATCTTCCCCCAAACATAATATTAAATAACCATAT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACACTCTA 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATCCAGAAGCGGGTGAGTATTCAGGAATACTTAACGTAACATTTACTCCTAGTAGTTCA 5536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATCCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAA 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGATTAGTATTCCAGTACTATGCTGGCCAGCAAACTTGACATTTATGTCAGAGCTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAATCAGTGTTCCGGTGTTGGGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAA 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTAATGATACTTCGTCATTGTTTATAAACTGGAATCGTATTAAGTCTGTATCCTTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGATGGCTATAGTACACATAGTCAAAGTATAGAAATGAGGTTTCAGGATGACTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTIGTCACTICTCTTGGGGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAATCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTCTGTA 5544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTGCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAACTTTCTTCTTTTAGGAGGACGAGAGTTTTATCCAAATAATGGAGAGGCTTTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAGGAAATAATGAATATAATCTTATAAAAACTGGAGAGCCATTAAAAAAATTGCCATAT
                                                                                                                                                                                                          0;
                                                                                                                                                                                                         Score 39.8; DB 4; Length 74962; Pred. No. 1.1; 0; Mismatches 142; Indels 0;
                                                                                                                                                                                                                                                                                                 G
```

5476

5416 . 957 5356 897

0;

Gaps

284

43032

43092

224

```
US-09-601-198-115/c; Sequence 115, Application US/09601198; Patent No. 6531583; GENERAL INFORMATION: APPLICANT: Cassell, Gail H.; APPLICANT: Chen, Ellson Y.; APPLICANT: Glass, Jennifer S.
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                         RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-417-485D-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-417-485D-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 5, Application US/09417485D Patent No. 6541202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Long, David M.
APPLICANT: Metz, Anneke M.
APPLICANT: Love, Ruschelle A.
TITLE OF INVENTION: Telomerase Reverse Transcriptase (TERT) Genes
FILE REFERENCE: 47714-5009-US
CURRENT APPLICATION NUMBER: US/09/417,485D
CURRENT FILING DATE: 2002-06-14
NUMBER OF SEQ ID NOS: 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: unsure
LOCATION: (1821)..(1837)
OTHER INFORMATION: m at position 1821 = a or c; w at position 1837
OTHER INFORMATION: a or t. Xaa (amino acid) at position 330 = Leu
OTHER INFORMATION: Ile; Xaa at position 335 = Asp or Gly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: TERT gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
LOCATION: (834)..(7385)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: Plasmodium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 10640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42971 ATAATAAAATAAATCCAATACTATT 42945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43031 GATTCAACCGACAACAATAAAAAACATTAACAAAAATAAGGTAAAATACAACACTAAAA 42972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3767 AAATAAAAGTAACAAAAATAACAATAACAAGAAGAAGAACAAAAATAATTATAACAATAA 3826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144 TAATATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATAGGAT 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84 AGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGGAACGAATCTTCCCCCCAAACA 143
                                                                                                                                                                                                AATATACATATAAAAATAAAAAATATTATAGAGAAAAGAAATTTTATGTTAAAA 4061
                                                                                                                                                                                                                    AAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAA 378
                                                                                                                                                                                                                                                                             TCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAACATTACAATTTACGGAAAAAAG 323
                                                                                                                                                                                                                                                                                                                                                      CAAATGTAAACTATCAAATTCCAAAAGGTATAATATAAGAAATAATAATAATAATAAAAA 3946
                                                                                                                                                                                                                                                                                                                                                                                            GACTTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGTGAGAA 263
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAAATTAAAGGCTATAAACAATTATT 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGTGAAACAATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 39; DB 4; Length 10640; Pred. No. 0.89; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 5
US-08-764-100-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                  APPLICATION NUMBER: US 01
FILING DATE: 17-MAR-1993
APPLICATION NUMBER: GB 9:
FILING DATE: 19-MAR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                       FILING DATE: 06-DEC-1996 CLASSIFICATION: 800 PRIOR APPLICATION DATA:
                                                                                                                   FILING DATE:
                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , 88
                                                                                                                                                                                                                                                                                                                                                        94304
No. 5773700ris, Allen
```

```
; ORGANISM: Ureaplasma urealyticum
US-09-601-198-115
                                                                                                                                                                                                                                    SOFTWARE: Patentin Ver.
SEQ ID NO 115
LENGTH: 342
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 3.6%;
Best Local Similarity 51.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: NUCLEIC ACID PROBES AND METHOD FOR DETECTING UREAPLASMA TITLE OF INVENTION: UREALYTICUM FILE REFERENCE: UAB-11452/22
                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/073,189 PRIOR FILING DATE: 1998-01-30 NUMBER OF SEQ ID NOS: 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/601,198
CURRENT FILING DATE: 2000-12-08
                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
              SOFTWARE: Patentin Rel
                                                                                                                                           STREET: 97 CITY: Palo Alto
                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
ADDRESSEE: Sandoz Agro, Inc
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   804 GAAAATAAATGATGACACCAAAGAAATTGCATATACTTTGTCACTTCTCT 853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          744 CTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAATTTTATCTAAG 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          303 ATAATTTGCAATAATAAATTCTGATATATGCTCTTCTAATGATTGTAGAATTCCAATTAA 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             684 ATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGGATATAGTACTAACAGCAG 743
                                                                                                                                                                                                                                                                                                                                                                                                                 6, Application US/08764100 5773700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAATAAAAGTGGTTCTATTATTTTACTTTCGTTAAATGTTTTACCTTTTT 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Glass, John I.
Heiner, Cheryl R.
Lefkowitz, Elliot
                                                                                                                                                                                                 975 California Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.0
 US/08/764,100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 38.8; DB Pred. No. 0.31;
                                                                                                                                                                                                                                                                                                                                                                          Martinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                   in
                                      Version #1.25
                                                                                                                                                                                                                                                                                  or Relating to Organic
                                                                                                                                                                                                                                                                                                                                                                          Ю
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

GB 9206016.9

Ħ

US/08/214,064 us 08/032,235

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-764-100-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 14, Application US/08764100 Patent No. 5773700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (415) 857-1125
INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 473 base pairs
                                                                                                                                                                                                                                    APPLICANT: Gielen L., Johannes J.
APPLICANT: Peters, Dirk
APPLICANT: Goldbach, Robert W.
TITLE OF INVENTION: Improvements in or
TITLE OF INVENTION: Compounds
NUMBER OF SEQUENCES: 27
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-764-100-14
             COMPUTER READABLE FORM:
MEDIIM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 34,490
REFERENCE/POCKET NUMBER: 13
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 354-3592
                                                                                                                                                                                                                                                                                                               APPLICANT: van Grinsven J., Martinus
APPLICANT: De Haan, Petrus T.
APPLICANT: Gielen L., Johannes J.
APPLICANT: Peters, Dirk
APPLICANT: Goldbach, Robert W.
                                                                                                                                              COUNTRY:
                                                                                                                                                                                                      STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420 TTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGG 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94304
                                                                                                                                                             Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTGATTACAATCATTCT 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTA 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAA 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTATAAAATATATATGTATTTGTGTTTAAAAACAAATCAAAAACCAAAAAAGAAAAAAG 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAA 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCTGATGGGAAATTTTAT 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAA 779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTATTTTATATTTTTATATAGTTTGCTTATTTAACACTTATTTAGACAAATTAAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGTTGAAAAAACCAAAAAATTTTTTTTTTTTAAATAATAAGGCTCCGGCCAGATTTGG
                                                                                                                                                                                                      975 California Avenue
                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                       Sandoz Agro, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.5%; Score 38.2; DB 1;
43.8%; Pred. No. 0.5;
US/08/764,100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34,490
4FR: 137-1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                              Relating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           213;
                                    #-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 473;
                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                              Organic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            286
```

```
RESULT 7
US-08-764-100-20/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-764-100-14
                                                                                                                                                                                                      Sequence 20, Application US/08764100 Patent No. 5773700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 3.5%;
Best Local Similarity 43.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: GB 9206016.9 FILLING DATE: 19-MAR-1992 ATTONNEY/AGENT INFORMATION: NAME: NO. 5773700r1s, Allen E. REGISTRATION NUMBER: 34,490 REFERENCE/DOCKET NUMBER: 137-1061 TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 354-3592
                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (415) 857-1125 INFORMATION FOR SEQ ID NO:
                                               APPLICANT: De Haan, Petrus T.
APPLICANT: Gielen L., Johannes J.
APPLICANT: Geters, Dirk
APPLICANT: Goldbach, Robert W.
TITLE OF INVENTION: Improvements in
TITLE OF INVENTION: Compounds
NUMBER OF SEQUENCES: 27
                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 06-DEC-
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 4970 base pairs TYPE: nucleic acid STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: UFILING DATE: 17-MAR-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                            1344
                                                                                                                                                                                                                                                                                                                                                                                                                                               1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1104 AGTATAAAATATATATGTATTTGTGTTTTAAAAAACAAATCAAAAAACCAAAAAAAGAAAAAAA 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1404 ATTTGATTACAATCATTCT 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420 TTTTAACTGTAATAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGG 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTA 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGAACTAAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAA 539
                                                                                                                                                                                                                                                                                                                                                                            TTATTTTTATATTTTTTATATAGTTTTGCTTATTTAACACTTATTTAGACAAATTAAATTT 1403
                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGA 599
                                                                                                                                                                                                                                                                                                                              ATCTGATGGGAAATTTTAT 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAA 779
 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                    van Grinsven J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                 Sandoz Agro,
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 08/032,235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/214,064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1993
Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;; Score 38.2; DB 1;
;; Pred. No. 1.1;
; 0; M1smatches 213;
                                                                                                                                                                      Martinus
                                                                                   'n
                                                                                   ၀
                                                                                 Relating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4970;
                                                                                   ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

. 1103

```
US-08-916-421B-1
; Sequence 1, Application US/08916421B
; Patent No. 6503729
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-764-100-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (415) 857-11
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: GB 920601(
ETLING DATE: 19-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: NO. 577370016, Allen E
REGISTRATION NUMBER: 34,490
REFERENCE/DOCKET NUMBER: 137-
TELEPHONE: (415) 354-3592
TELEPHONE: (415) 354-3592
TELEFAX: (415) 857-1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/00 FILING DATE: 06-DEC-1996 CLASSIFICATION: 800 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 4970 base pai
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 17-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3867 AGTATAAAATATATATGTATTTGTGTTTAAAAAACAAATCAAAAACCAAAAAAGAAAAAA 3808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420 TITTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTTATATATTTCCTGCTGG 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Palo Alto
: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                   TCTAAGACCTTTTTATTTGTTTTTATACATTTTATTTTGTTTTTTGTTGATTTTTATTTTTA 3628
                                                                                                                                                                                                                                                                                                                        CTTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTA 719
                                                                                                                                                                                                                                                                                                                                                             TAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAA 659
                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGACGATATAGTGAAACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGA 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAA 539
                                                                                                                                   ATTTGATTACAATCATTCT 3549
                                                                                                                                                                      ATCTGATGGGAAATTTTAT 798
                                                                                                                                                                                                           TTATTTTTATATTTTTATATAGTTTGCTTATTTTAACACTTATTTTAGACAAATTAAATTT 3568
                                                                                                                                                                                                                                            TGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAA 779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4970 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UMBER: US 08/032,235
17-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/764,100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GB 9206016.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/214,064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Allen E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 38.2; DB 1;
Pred. No. 1.1;
0; Mismatches 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137-1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 4970;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

Ş

밁 Š

Ş

```
APPLICANT: Bult et al.
TITLE OF INVENTION: Complete Genome Sequence of the Methanogenic Archaeon, Methano
Patent No. 6503729
TITLE OF INVENTION: jannaschii
FILE REFERENCE: PB276
FILE REFERENCE: PB276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INC. misc_feature LOCATION: (98266)..(98266) OTHER INFORMATION: n equals a OTHER INFORMATION in the control of the contr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (84773).
OTHER INFORMATION: n equals a
NAME/KEY: misc_feature
LOCATION: (84808). (84808)
OTHER INFORMATION: n equals a
                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (163385)..(163385)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc_feature
LOCATION: (191989)..(191989)
OTHER INFORMATION: n equals a, t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/024,428
PRIOR FILING DATE: 1996-08-22
NUMBER OF SEQ ID NOS: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/08/916,421B CURRENT FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (103998)..(103998)
OTHER INFORMATION: n equals
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (98343)..(98343)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (98239)..(98239)
OTHER INFORMATION: n equals
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (98120)..(98120)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (28222)..(283
OTHER INFORMATION: n ec
                                                                      NAME/KEY: misc_feature
LOCATION: (234220)..(234220)
OTHER INFORMATION: n equals
                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (234187)..(234187)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (231980)..(231980)
                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (191995)..(191995)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (148948)..(148948)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (98159)..(98159)
COTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (84812)..(84812)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Methanococcus jannaschii
                                                                                                                                                                                                                                      OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                      NAME/KEY: misc_feature
LOCATION: (234814)..(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (28222)
  D
'
                                                                              a
                                                                                                                                                             ø
                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
a
Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,
                                                                                                                                                             ţ
                                                                                                                                                                                                                                         Ĺ
                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
ó
                                                                              ç
                                                                                                                                                          ç
                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ċ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ċ,
  ဝူ
                                                                                                                                                             얁
                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ဝင္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ဌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Or,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           얽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ę
                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
φ
```

```
NAME/KEY: misc_feature
LOCATION: (657081). (657081)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc_feature
LOCATION: (657203)...(657203)
OTHER IMFORMATION: n equals a, t
                                                                                                                                                                                                                                                                            OTHER INFORMATION: n equals a, NAME/KEY: misc_feature LOCATION: (779676)...(779676) OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature LOCATION: (1310988)..(1310988) OTHER INFORMATION: n equals a.
                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (855539)..(855539)
COTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                         LOCATION: (713652). (713652)
OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature
LOCATION: (741684)...(741684)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (559167)..(559167)
OTHER INFORMATION: n equals a,
                                                                                          NAME/KEY: misc_feature
LOCATION: (1119881)..(1119881)
                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (1084830)..(1084830)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (312993)..(312993)
OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature
                                       OTHER INFORMATION: n equals
                                                     NAME/KEY: misc_feature
LOCATION: (1130881)..(1130881)
                                                                   OTHER INFORMATION: n equals a, NAME/KEY: misc_feature
                                                                                                                    OTHER INFORMATION: n equals a,
                                                                                                                                                                                                LOCATION: (871619)...(871619)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (779455)..(779455)
                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: (682442)..(682442)
OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: (674435)...(674435)
OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature
LOCATION: (682442)...(682442)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: (622708)..(622708)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: (600992)...(600992)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: (559241)..(559241)
OTHER INFORMATION: n equals a,
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: (319226)..(319226)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: (312837)..(312837)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: (309418)..(309418)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature LOCATION: (309398)..(309398) OTHER INFORMATION: n equals
                                                                                                                                 OCATION: (1096846)..(1096846)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
                                                                                                                                                                                                                              feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        feature
                                                                                                                                               feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   equals
                                         a,
                                                                                                                                                                                                   e
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,
  Ĺ
                                         Ĺ
                                                                               Ĺ
                                                                                                                      ŗ
                                                                                                                                                            Ĺ
                                                                                                                                                                                                   Ç
                                                                                                                                                                                                                                         ί,
                                                                                                                                                                                                                                                                                ۲
                                                                                                                                                                                                                                                                                                                      ţ
                                                                                                                                                                                                                                                                                                                                                             Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                   ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ĺţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ţ
    ç
                                                                                                                      ů
                                         'n
                                                                               'n
                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                ç,
                                                                                                                                                            Ċ,
                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                                                                                                                                                                                                            ó
                                                                                                                                                                                                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç
  or
                                          or
                                                                                 မှု
                                                                                                                       Ö,
                                                                                                                                                              ဝူ
                                                                                                                                                                                                   0r
                                                                                                                                                                                                                                         얁
                                                                                                                                                                                                                                                                                or
                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                     ٥
۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    얽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     မ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      얶
                                                                                                                                                                                                                                                                                                                                                                                                   φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

```
; TYPE: DNA
; ORCANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyt
US-09-495-050A-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                 PRIOR APPLICATION NUMBER: 60/118, 318
PRIOR EILING DATE: 7000-01-31
PRIOR FILING DATE: February 1, 1999
NUMBER OF SEQ ID NOS: 305
SOFTWARE: PERL Program
SEQ ID NO 48
LENGTH
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 9
US-09-495-050A-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-916-421B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 88
                                                                                                                                                                                                                                                                                                                                                                                        Sequence 48, Application US/09495050A Patent No. 6492505
Query Match
Best Local Similarity
Matches 104; Conserv
                                                                                                                                                                                                                                                                APPLICANT: ROODA, Reddy
APPLICANT: Guegler, Karl, J.
APPLICANT: AU YOUNG, Janice
TITLE OF INVENTION: COMPOSITION FOR DETECTION OF GENES
FILE REFERENCE: PA-0013 US
FILE REFERENCE: PA-0013 US
FILE REFERENCE: PA-0013 US
                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/495,050A CURRENT FILING DATE: 2000-01-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals a, NAME/KEY: mlsc_feature LOCATION: (1664855) OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature LOCATION: (1603734). (1603734) OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature LOCATION: (1602912). (1602912) OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (1349491)...(1349491)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (1349473)..(1349473)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: (1569020)..(1569020)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: (1470091)..(1470091)
OTHER INFORMATION: n equals a,
                                                                                                                                                            LENGTH: 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (1637998)..(1637998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (1313224)..(1313224)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1486969 CTTAGCTGATATAAACAAAGATGATGCAATCTATTTGAACTTAGGATTTGGAGGGGGCTT 1487028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1486909 TGTTGAATTTGAATTAAAGAAAAACAATCCTGTTTATGTTGAAAAATCCTATGAAAAACT 1486968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTAACTCCAACAATGGAACGTCATTAAATATTGCTGACGCAGCTTCTCT 917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATAAATGATGACACCAAAAGAAATTGCATATACTTTGTCACTTCTCTTGGCGGGTAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTAAATAAAACAGTATATCCTTTATTATGGAAAAATGACGAAAATCATCT 1487079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAATTTTATCTAAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                           Incyte
             3.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.5%;
                                                                             ID No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
Score 37.4; DB Pred. No. 0.84; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 38.2;
Pred. No. 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ָרָ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ĺ
                                                                             6492505 949387CT1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                            DB 4; Length 533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4; Length 1664976;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                       ENCODING MEMBRANE-ASSOCIATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

Conservative

0

Indels

0

Gaps

Ş

밁 Ş 밁 δ 밁 Q 밁

```
RESULT 10
5168051-9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
US-09-463-962-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 5168051;
                                                                               SOFTWALL SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO:9:
                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09463962 Patent No. 6413754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/463,962
CURRENT FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: PCT/FR98/01788
PRIOR FILING DATE: 1998-08-11
PRIOR APPLICATION NUMBER: FR97/10287
PRIOR FILING DATE: 1997-08-12
NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                             APPLICANT: THURET, JEAN-YVES TITLE OF INVENTION: KINASE AFILE REFERENCE: 0846-0536-03
                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
      ORGANISM: Candida albicans FEATURE: NAME/KEY: CDS
                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 04-AUG-198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: DERYNCK, RIK M.A.; GOEDDEL, DAVID V. TITLE OF INVENTION: NUCLEIC ACID ENCODING TGF-B ITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 2671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2518 ATTCCCCAAAAATATTTATTTATACAAAGATTTTTGAGAGTA 2476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11 TTTTATTTATTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    h 3.4%;
Similarity 51.5%;
84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCCCCCAAACATAATATTAAATAACCATATTACAGCATA 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCTTAGAATAAGGCCTTTATTGTTTAGAAACAATCTTCCAGAAGATGAAATGATCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAACATTACAATTTACGGAAA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATGACTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGTG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACATAATATATAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATA 199
                                                                                                                                                                                                                                                                                                                                                     FAYE, GERARD
VALAY, JEAN-GABRIEL
MANN, CARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACAGGAACGAAT 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAAATAGAGTGTTAAAAAAAAGAAAACAAAGAAAA 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAA 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATAAATATATGATGTAATACATATGTCAATCAGCTCAATTTAGCCATTCCATAATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATGTATTGTATTCTTGAAAAATGCTAAGAGAGATTTTAAATATCCTCACCACAAAAAA 191
                                                                                                                               PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCATGTTTCAAAACAACATGTCGTACATAATAAATATAGATAATTTTTGTCAGTGGAGA 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-AUG-1989
                                                                                                                                                                                                                                                                                        N: KINASE ACTIVATING DEPENDENT CYCLIN PROTEIN KINASES AND THEIR 0846-0536-0XPCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      us/07/389,929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 36.6; DB 6;
Pred. No. 2.4;
0; Mismatches 79,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 2671;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: King, Gordon E.

APPLICANT: Algate, Paul A.

TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND

TITLE OF INVENTION: DIAGNOSIS OF OVARIAN CANCER

FILE REFERENCE: 210121.462C2

CURRENT APPLICATION NUMBER: US/09/404,879A

CURRENT FILING DATE: 1999-09-24

NUMBER OF SEQ ID NOS: 393

SOFTWARE: FastSEQ for Windows Version 3.0

SEQ ID NO 2

LENGTH: 540

TYPE: DNA

ORGANISM: Homo sapien
RESULT 13
US-09-338-933-2
; Sequence 2, Ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                          δ
                                                                                                                                                                                       밁
                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                         吊
                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; LOCATION: (1)..(1020)
US-09-463-962-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-404-879A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2, Applic Patent No. 6468546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.4%;
Local Similarity 52.7%;
tes 79; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match 3.3%;
Local Similarity 46.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         679 GGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGGATATAGTACTAAC 738
                                                                                                                                                                                       306
                                                                                                                                                                                                                                555
                                                                                                                                                                                                                                                                     246 TTTCTGCATGGGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACC 305
                                                                                                                                                                                                                                                                                                                498
                                                                                                                                                                                                                                                                                                                                                       186 GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
                                                                                                                                                                                                                                                                                                                                                                                          438 CGCGGCTTCAGGTGCAAGTTTATATTTTATATATTCCTGCTGGCGAACTAAAAAATTTGCC 497
                                                                                                                                                                                                                                                                                                                                                                                                                                     126 TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   378 AAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              318 AAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAA 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        910 TTACCTCGATGCAATGATGATTCATGAAA 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        850 AACTTGCATTTTAAAAAATTCAATTTACAAAAATATCCTAGAAAAAGATTGGGATATTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              739 AGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGGGAAATTTTAT 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      366 AGCAGGGTTACATGATGAAAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 AAGATGCATTTAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA 125
                                                                                                                                              GATATGGTTACCTCAGTTCAAAAG 638
                                                                                                                                                                                     GGCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAA
                                                                                                                                                                                                                            GACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATTCA 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09404879A
  Application US/09338933
                                                                                                                                                                                                                                                                                                              TTTTGG----TGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACGATATAGTGA 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTAAGGAAAATAAATGATGACACCAAAGAA 828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 36.4; DB Pred. No. 1.9; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 36; I
Pred. No. 2;
                                                                                                       389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1020;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                       365
```

Ş 밁

밁

밁

Ş

Š

554

245 497

305

```
١,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: King, Gordon E.
TITLE OF INVENTION: COMPOSITIONS AND METHODS
TITLE OF INVENTION: OVARIAN CANCER
FILE REFERENCE: 210121.462C1
CURRENT APPLICATION NUMBER: US/09/338,933
CURRENT FILING DATE: 1999-06-23
NUMBER OF SEQ ID NOS: 312
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 2
LENGTH: 540
TYPE: DNA
ORGANISM: Homo sapien
US-09-338-933-2
                                                                                                                                            ; NUMBER OF SEQ ID NOS: 310
; SOFTWARE: FastSEQ for Windows Version
; SEQ ID NO 2
; LENGTH: 540
; TYPE: DNA
; ORGANISM: Homo sapien
US-09-215-681-2
                         ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                            Query Match
Best Local Similarity
Matches 151; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2, Application US/09215681A Patent No. 6528253
                                                                                                                                                                                                                                                                              APPLICANT: Mitcham, Jennifer L.
APPLICANT: Frudakis, Tony N.
APPLICANT: King, Gordon E.
TITLE OF INVENTION: COMPOSITIONS AND METHODS
TITLE OF INVENTION: OF OVARIAN CANCER
FILE REPERENCE: 210121.463
CURRENT APPLICATION NUMBER: US/09/215,681A
CURRENT FILING DATE: 1998-12-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent No. 6488931 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ULT 14
09-215-681-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Mitcham, Jennifer Lynn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match 3.3%;
Local Similarity 46.6%;
les 151; Conservative
318 AAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           366 AGCAGGGTTACATGATGAAAAAGG 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    378 AAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    318 AAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAAGGCTATAAACAATTATTGTTCAA 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66 AAGATGCATTTAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATTCA 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTCTGCATGGGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTTGG---TGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACGATATAGTGA 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCGGCTTCAGGTGCAAGTTTATATTTATATTTATATTTCCTGCTGGCGAACTAAAAAATTTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATATGGTTACCTCAGTTCAAAAG 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAA
                                                                Conservative
                                                                                 3.3%;
                                                            Score 36; DB 4
Pred. No. 2;
0; Mismatches
                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 36; DB Pred. No. 2; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4; Length 540
                                                            170;
                                                                                                                                                                                                                                                                                                                                                                        FOR DIAGNOSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOR THERAPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              170;
                                                                                                    Length
                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QF
                                                            Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
--
                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                    377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PATENT AND SEPTIMARE SOLUTIONS AND METHODS FOR THE THERAPY AND FILE REFERENCE: 210121.462C2

CURRENT APPLICANT: MISSEN SOLUTIONS AND METHODS FOR THE THERAPY AND TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND FILE REFERENCE: 210121.462C2

CURRENT APPLICATION UNMER: US/09/404,879A

CURRENT APPLICATION UNMER: US/09/404,879A

CURRENT APPLICATION SOLUTION UNMER: US/09/404,879A

CURRENT APPLICATION UNMER: US/09/404,879A

CURRENT FILING DATE: 1999-09-24

NUMBER OF SEQ ID NOS: 393

SOFTWARE: FASTSEQ for Windows Version 3.0

SEQ ID NO 137

LENGTH: 551

TYPE: DNA

ORGANISM: Homo sapien

US-09-404-879A-137
                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                  밁
                                                                     δ
                                                                                                                       밁
                                                                                                                                                                                                      В
                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-404-879A-137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 137, Application US/09404879A
                                           363
                                                                               615
                                                                                                                       303
                                                                                                                                                               555
                                                                                                                                                                                                      243
                                                                                                                                                                                                                                              498
                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                              438
                                                                                                                                                                                                                                                                                                                                                                                                       378 AAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    318 АААААGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      438 CGCGGCTTCAGGTGCAAGTTTATATATATATATCCTGCTGGCGAACTAAAAAATTTGCC
                                                                                                                                                                                                                                                                                                                                                                 123 TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615 GATATGGTTACCTCAGTTCAAAAG 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        555 GACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATTCA 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       366 AGCAGGGTTACATGATGAAAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126 TTATTGTGTCAGAAGAGTTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 3.3%; Similarity 46.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGATGCATTTAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA
                                                                               GATATGGTTACCTCAGTTCAAAAG
                                                                                                                                              GACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGGAAATATTCA
                                                                                                                                                                                                                                                                                    GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
                                                                                                                                                                                                                                                                                                                       CGCGGCTTCAGGTGCAAGTTTATATTATATATTCCTGCTGGCGAACTAAAAATTTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTTGG----TGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACGATATAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
                                           AGCAGGGTTACATGATGAAAAAGG
                                                                                                                       GGCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAA
                                                                                                                                                                                                    TTTCTGCATGGGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACC
                                                                                                                                                                                                                                        TTTTGG----TGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACGATATAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCTGCATGGGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGATGCATTTAAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 36;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches 170;
```

DB 4; Length 551;

Indels

ω •

Gaps

437

122

497 182

242

389

386

Search completed: August 25, 2003, 18:48:16 Job time: 97 secs

This Page Blank (uspto)

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     imum
imum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic -
                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                            11086
14444
1086
11...662
12...662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-839-894-9
1086
1 atgaataagatttt
                                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            August 25, 2003, 18:03:07; Search time 289 Seconds (without alignments) 8448.117 Million cell updates/sec
               IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1517243 seqs, 1124081882 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Published_Applications_NA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                 : /cgn2_6/ptodata/2/pubpna/US08_NEW_PUB.seq:*
: /cgn2_6/ptodata/2/pubpna/US08_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US08_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US09B_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US09E_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US09C_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10A_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10B_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10B_PUBCOMB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
: /cgn2_6/ptodata/2/pubpna/US10_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atgaataagattttatttat.....caagtagtcaaacactctag 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /cgn2_6/ptodata/2/pubpna/US07_PUBCOMB.seq:*
/cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US06_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
/cgn2_6/ptodata/2/pubpna/US07_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                        Length
               1086
7239
10279
9504
499
4985
6137
19734
90955
6209
6209
6209
15548
2241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6 (c) 1993 - 2003 Compugen Ltd
                                                                                                                                                                                                                                                                                           밁
US-09-839-894-9

US-09-839-894-27

US-09-839-894-27

US-10-240-455-281

US-10-240-453-281

US-10-027-632-287979

US-10-027-632-287980

US-10-044-40-10

US-10-240-485-3

US-10-240-485-3

US-10-240-453-322

9 US-09-764-860-1185

US-10-311-455-2128

US-10-108-605-116

US-10-108-605-116

US-10-311-455-890

US-10-311-455-890

US-10-311-455-8443
               110
112
112
113
113
114
114
114
113
113
113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      summaries
                                                                                                                                                                                                                                                                                                                                            SUMMARIES
      Sequence 9, Appli
Sequence 1564, App
Sequence 281, App
Sequence 281979,
Sequence 287980,
Sequence 10, Appli
Sequence 3, Appli
Sequence 322, Appli
Sequence 1185, Ap
Sequence 116, App
Sequence 116, App
Sequence 116, App
Sequence 116, App
                                                                                                                                                                                                                                                                                         Description
```

	•			٠.	•••			•		•••		•																
45	44	43	42	41	40	39	38	37	36	ω 5	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
.8	.8	.8	8	8	.8	38.8	.8	39	39	39	39	39	39.2	39.4	9.	9.	9.	39.6	9	9.	9.	9.	40	40	40	40	•	0
						3.6			٠	٠											3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
9642	4858	389	16724	16724	6668	6375	720	19653	$\overline{}$	6049	5771	5209	872	12507	5572	5268	15674	10	7676	4	18878	985	6210	601	601	601	598	73334
12	14	14	12	12	12	12	11	12	12	12	12	12	9	12	12	12	12	12	12	14	10	13	12	13	13	13	14	12
-311-455	-10-172-086	-10-102-524	-10-240-485	-10-311-455	-10-311-455	-10-311	-09-791-279-5	US-10-311-455-1307	-10	-10-311-455-	-10-311-455	-10-311-455	09-770-445-5	Ç	-10-311-455	-10-311-455	485	-10-311-	-10-240-485	-10-274-974	US-09-764-877-3806	-10-027-632	-10-240-453	7-632-22746	US-10-027-632-227465	-10-027-632-22746	02-524	US-10-311-455-2098
330, Ap	77,	82,	е 89,	e 106	119		54,	130		34	19:		559	27	13	85	29	33	15	Ü	3806,	151861,	Œ		Ø	equence 227464		

0000

a იიი

```
; NAME/KEY: CDS
; LOCATION: (1)...(1086)
US-09-839-894-9
                         δÃ
                                                           밁
                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-839-894-9
                                                                                                                            Query Match
Best Local Similarity
Matches 1086; Conserv
                                                                                                                                                                                                                                                                                                             SOFTWARE: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9, Application US/09839894 Patent No. US20020176868A1
                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/839,894
CURRENT FILING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEQ ID NOS: 40
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Altboum, Zeev
APPLICANT: Barry, Eileen M.
APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
TITLE OF INVENTION: ISOLATION AND CHARACTERIZATION
TITLE OF INVENTION: CSA OPERON
FILE REFERENCE: UDFMD.006A
                                                                                                                                                                                                                                               TYPE: DNA ORGANISM: E. FEATURE:
                                                                                                                                                                                                                                                                                             LENGTH: 1086
                                61
                                                           FastSEQ for Windows Version
 GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                  GTATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                                                                                                            100.0%;
ilarity 100.0%;
Conservative (
                                                                                                                              0;
                                                                                                                            Score 1086; DB 10;
Pred. No. 3.8e-248;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              OF THE
                                                                                                                              Indels
                                                                                                                                                             Length 1086;
                                                                                                                            0;
                                                                                                                            Gaps
120
                                                             60
                                                                                            60
```

0 0 0 0 0 0 0 0 0 0 0 0 0

```
RESULT 2
US-09-839-834-27
; Sequence 27, Application U
; Patent No. US20020176868A1
                                                         Ş
                                                                            Db
                                                                                         Ω
                                                                                                            밁
                                                                                                                        Ş
                                                                                                                                            밁
                                                                                                                                                        Ş
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                   B 5
                                                                                                                                                                                                                                                                                                  유 양 문
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                            841
                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                          781
                                                                                                                                                                                                                        781
                                              CTCTAG
                                                                             TTGCGTCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                   AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACGTTAACTCAGCTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCAGTGTTCCGGTGTTGTGTTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                         AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                TTTAACTGTAATAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTCATACTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGAACGAATCTTCCCCCAAACATAATATATTAAATAACCATATTACAGCATACAGTGAA
                                                                                                             ATCAGTGTTCCGGTGTTGTGTTGGCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                            GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                    GCTGACGCAGCTTCTCTGGAAACAAACTGGAATAGAATTACAGCTGTCACCATGCCAGAA
                                                                                                                                                                           TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAATGGAACGTCATTAAATATT
                                                                                                                                                                                   TTGTCACTTCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATT
                                                                                                                                                                                                                                                                                                                                   AGACGATATAGTGAGACCTATGGAACTTACACTATAAATTATCACTATTAAATTAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                         TTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTCCTGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTAT
                                                            1086
         US/09839894
                                                                                                                                            960
                                                                                                                                                           960
                                                                                                                                                                           900
                                                                                                                                                                                           900
                                                                                                                                                                                                          840
                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                 54 C
                                                                                                                                                                                                                                                                                                                                                                                                48C
                                                                                                                                                                                                                                                                                                                                                                                                               48C
                                                                                                                                                                                                                                                                                                                                                                                                                               42C
                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                 δÃ
                                                                    Ş
                                                                                    В
                                                                                                                   문
                                                                                                                                  Š
                                                                                                                                                               Q
                                                                                                                                                                                              QY
                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                            δÃ
                                                                                                 Ş
                                                                                                                                                  В
                                                                                                                                                                                  밁
                                                                                                                                                                                                                  F
                                                                                                                                                                                                                                                                             밁
```

```
ORGANISM: E. CO11
FEATURE:
NAME/KEY: CDS
LOCATION: (283)...(999)
NAME/KEY: CDS
LOCATION: (1028)...(1531)
NAME/KEY: CDS
LOCATION: (1589)...(4192)
NAME/KEY: CDS
LOCATION: (4196)...(5281)
NAME/KEY: CDS
LOCATION: (4196)...(5281)
NAME/KEY: CDS
LOCATION: (5790)...(6119)
US-09-839-894-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Altboum, Zeev
APPLICANT: Barry, Eileen M.
APPLICANT: Levine, Myron M.
APPLICANT: Levine, Myron M.
APPLICANT: University of Maryland
APPLICANT: University of Maryland
APPLICANT: University of Maryland
APPLICANT: University of Maryland
APPLICANT: UNIVERSITY
TITLE OF INVENTION: CSA OPERON
FILE REFERENCE: UOFMD.006A
CURRENT APPLICATION NUMBER: US/09/839,89
CURRENT FILING DATE: 2001-04-20
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR APPLICATION NUMBER: 60/198,626
PRIOR FILING DATE: 2000-04-20
NUMBER OF SEG ID NOS: 40
SOFTWARE: FastSEQ for Windows Version 4.
SEQ ID NO 27
LENGTH: 7239
TYPE: DNA
               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Sir
Matches 1086;
                                                                                                                                                                                                                           4496
                                                                                                                                                                                                                                                                                      4436
                                                                                                                                                                                                                                                                                                                                               4376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4196
                                                                                                      4616
                                                                                                                                                                  4556
                                                                                                                                                                                                                                                                                                                                                                                                          4316
                                                                                                                                 421
                 541
                                                                          481
                                                                                                                                                                                               361
                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                    AGGAACGAATCTTCCCCCAAACATAATATATAAATAACCATATTACAGCATACAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAATAAGATTTTATTTATTTTTACATTGTTTTTCCTCTCAGTACTTTTTACATTTTGCT
AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                         AAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCAT
                                                                                                                                                                                                                          ACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAGAGAGCTACAAATTAAAGGCTAT
                                                                                                                                                                                                                                                                                                                                               AGTCATACTCTGTATGATAGGATGACTTTTTATGTTTTGTCTCACAATACACTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTATCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTATCGGCAGATAAAATTCCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGAC
                                           GAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1086; DB 10;
Pred. No. 8.7e-248;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            , 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                      4675
                                                                                                                                                                4615
                                                                                                                                                                                                                           4555
                                                                                                                                                                                                                                                                                      4495
                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                               4435
                                                                                                                                                                                                                                                                                                                                                                                                        4375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4255
               600
                                                                                                                                 480
                                                                                                                                                                                            420
                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
```

```
APPLICANT: DIEX, ALEXANDER
APPLICANT: PIEPENNROCK, Christian
APPLICANT: BERLIN, Kurt
ITITLE OF INVENTION: Diagnosis of Diseases Associated with the Immune System by Dete:
TITLE OF INVENTION: Cytosine methylation
FILE REFERENCE: 5013.1014
CURRENT ETLING DATE: 2002-12-16
CURRENT ETLING DATE: 2002-17-16
PRIOR APPLICATION NUMBER: DE10901/07537
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR APPLICATION NUMBER: DE 10043826.1
NUMBER OF SEQ ID NOS: 2424
SEQ ID NO 1564
LENGTH: 10279
TYPE: DNA
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
US-10-311-455-1564/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                   US-10-311-455-1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1564, Application US/10311455 Publication No. US20030143606A1 GENERAL INFORMATION:
                                           Query Match
Best Local Similarity
Matches 143; Conserv
                                                                                                                                   OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGCGTCCAACTGGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTAT 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCTAG 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCAGTGTTCCGGTGTTGTGTTGGCCCTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAA 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGCGTCCAACTGGTGGGGGCACATATATTGGAAAGAAATTCTGTTGATATGTGCTTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCAGTGTTCCGGTGTTGTGTTGGCCTTGGACGTTTGCAATTGGATGCAAAAGTGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTGATGGGAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACT 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGAGGCTGGACAATATATGGGTAATATTAATGTTACTTTCACACCAAGTAGTCAAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGACGATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGAT
                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5281
                                                                                                                                   chemically treated genomic DNA (Homo
                                                                47.8%;
                                               Score 49.4; DI
Pred. No. 0.23
0; Mismatches
                                                 0;
                                                                DB 12;
.23;
                                                 156;
                                                 Indels
                                                                              Length
                                                                                                                                   sapiens)
                                                                                  10279
                                                 0;
                                                 Gaps
                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          660
                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                          Detern
                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 350
SEQ ID NO 281
LENCTH: 9504
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                   밁
                                             Qγ
                                                                                В
                                                                                                            Qy
                                                                                                                                                   밁
                                                                                                                                                                               Ϋ́
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION: US-10-240-453-281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-240-453-281/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/240,453
CURRENT FILING DATE: 2002-10-02
PRIOR APPLICATION NUMBER: PCT/EP01/03973
PRIOR FILING DATE: 2001-04-06
PRIOR APPLICATION NUMBER: DE 10019058.8
PRIOR FILING DATE: 2000-04-06
PRIOR APPLICATION NUMBER: DE 10019173.8
PRIOR APPLICATION NUMBER: DE 10019173.8
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR APPLICATION NUMBER: DE 10032529.7
                                                                                                                                                                                                                                                                                       Query Match 4.4%;
Best Local Similarity 46.8%;
Matches 152; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 281, Application US/10240453 Publication No. US20030148326A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: BERLIN, Kurt
TITLE OF INVENTION: Diagnosis of Diseases Associated with DNA
TITLE OF INVENTION: Transcription
TITLE OF INVENTION: by Means of Assessing the Methylation Status
TITLE OF INVENTION: With DNA TRANSCription
FILE REFERENCE: 5013.1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: OLEK,
APPLICANT: PIEPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR FILING DATE: 2000-09-01
                                                                                                                                                     9012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7605
                                                                                  8952
                                                                                                                                                                                                                      377
                                                                                                                                                                                                                                                       317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                 497
                                                                                                                   437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260
                                      CTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACGATATAGTGAGA 556
                                                                                                                                                                                   AAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAA 436
                                                                                                                                                                                                                                           AAAAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTATATCTTCATAAACACCCCAATATTTATTATATCTCATTTAAAATTCATTAAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTTACAATTTACGGAAA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATGACTTTTTTATGTTTGTCTTCTCACACACTCACTTAATGGAGCATGTCCAACCAGTG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAAC 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAAA 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAAACAAATAACTTAATTTCAACACGAATAAAAAAAATTAAAAAATAAAATTAAAAAAA 7426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTATAAAAAACATCAACTATAAAATTCATAAAATTTAAAATTTATCTTTTAAACACTAAAA
                                                                                ACGCGGCTTCAGGTGCAAGTTTATATTTTATATTCCTGCTGGCGAACTAAAAAATTTGC 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIEPENBROCK, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACATAAAAATACTAATAATATATACAAATCCAAACTTTTATCAAACAAAACAATTAAAAA 7366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alexander
                                                                                                                                                                                                                                                                                                                                                                       chemically treated genomic DNA (Homo sapiens)
                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                       Score 48.2; DB 12;
Pred. No. 0.42;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                        9504;
                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of Genes Associa
                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7307
                                                                                  8893
                                                                                                                                                   8953
                                                                                                                                                                                                                      9013
                                                                                                                                                                                                                                                       376
                   8833
```

```
RESULT 6
US-10-027-632-287980/c
Sequence 287980, Application US/10027632
GENERAL INFORMATION:
APPLICANT: Wang, David G.
TITLE OF INVENTION: Identification and P.
TITLE OF INVENTION: Polymorphisms in the
                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                δã
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Human US-10-027-632-287979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-027-632-287979/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FASTSEQ f
SEQ ID NO 287979
LENGTH: 499
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 287979, Application US/10027632
GENERAL INFORMATION:
APPLICANT: Wang, David G.
TITLE OF INVENTION: Identification and Mapping of Single Nucleotide
TITLE OF INVENTION: Polymorphisms in the Human Genome
FILE REFERENCE: 108827.129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/027,632
CURRENT FILING DATE: 2002-04-30
PRIOR APPLICATION NUMBER: US 60/218,006
PRIOR FILING DATE: 2000-07-12
PRIOR APPLICATION NUMBER: US 60/198,676
PRIOR FILING DATE: 2000-04-20
PRIOR FILING DATE: 2000-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: US 60/185,218
PRIOR FILING DATE: 2000-02-24
PRIOR APPLICATION NUMBER: US 60/167,363
PRIOR FILING DATE: 1999-11-23
PRIOR PELICATION NUMBER: US 60/156,358
PRIOR FILING DATE: 1999-028
PRIOR FILING DATE: 1999-028
PRIOR APPLICATION NUMBER: US 60/146,002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR EILING DATE: 2000-03-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8772 AATATTCTTCATTTCTAAAATAA 8748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         669 AACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTATGATGGATA
                                                                                                                                                                                                                                   909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 306 AACATTTCGAGGAAGATAAAATTGTACAAATTGTTTTAAATAGTTATAAATTGTTATAAA
                                                                                                                                                                                                                                                                                                                                                                                                  789 GAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACTTTGTCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                              246 TAGTAGATAGAAAAGCTCACTTTAATTAATATATTAAAAATTAAACCTAAGCTGTATTTTCT 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      729 TAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGG
                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGGTTACCTCAGTTCAAAAGTGA 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTGTCTCYG
                                                                                                                                                                                                                                   AGCTTCTCTG 918
                                                                                                                                                                                                                                                                            TATGTGGAACAGGTCATTTTGATTACACCTCGAATCCACAGCATTTCATATTGCTTCCAA
                                                                                                                                                                                                                                                                                                                  TCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATTGCTGACGC
                                                                                                                                                                                                                                                                                                                                                             TGAACCTCAATAATGGTTTTAAACAAAAGCAAACAAAAATATAAATGTTACCATGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1999-08-09
    Identification and Mapping of Single Nucleotide Polymorphisms in the Human Genome
                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 43.2; DB 13;
Pred. No. 1.8;
1; Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                    908
                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                           ; ORGANISM: Anopheles gambiae US-10-094-240-10
                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 7
US-10-094-240-10/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Human US-10-027-632-287980
                                                                                                                                                                                                                                                                                                                  Sequence 10, Application US/10094240
Publication No. US20030082637A1
GENERAL INFORMATION:
APPLICANT: ZWIEBEL, LAURENCE J.
TITLE OF INVENTION: ARRESTIN GENE, POLYPEPTIDE,
FILE REFERENCE: N8289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 325720
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 287980
                                                                                                    SOFTWARE: PatentIn
SEQ ID NO 10
LENGTH: 4985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 120;
                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/10/094,240 CURRENT FILING DATE: 2001-03-08 PRIOR APPLICATION NUMBER: 10/056,405 PRIOR FILING DATE: 2002-01-24
                                                                                                                                                               PRIOR APPLICATION NUMBER: 60/264,649
PRIOR FILING DATE: 2001-01-26
NUMBER OF SEQ ID NOS: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/027,632
CURRENT FILING DATE: 2002-04-30
PRIOR APPLICATION NUMBER: US 60/218,006
PRIOR FILING DATE: 2000-07-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 60/156,358 PRIOR FILING DATE: 1999-09-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US 60/185,218
PRIOR FILING DATE: 2000-02-24
PRIOR APPLICATION NUMBER: US 60/167,363
PRIOR FILING DATE: 1999-11-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: US 60/198,676 PRIOR FILING DATE: 2000-04-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 60/146,002 PRIOR FILING DATE: 1999-08-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE: 2000-03-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: 108827.129
                                                                                       TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             669 AACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126 TATGTGGAACAGGTCATTTTGATTACACCTCGAATCCACAGCATTTCATATTGCTTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246 TAGTAGATAGAAAAGCTCACTTTAATTAATATATAAAATTAAACCTAAGCTGTATTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            729 TAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   306 AACATTTCGAGGAAGATAAAATTGTACAAATTGTTTTAAATAGTTATAAATTGTTATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      789 GAAATTTTATCTAAGGAAAATAAATGATGACACCAAAGAAATTGCATATACTTTGTCACT 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCTTCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTCTTGGCGGGTAAAAGTTTAACTCCAACAAATGGAACGTCATTAAATATTGCTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.0%;
ilarity 48.0%;
Conservative
                                                                                                                                                    Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 325720
    3.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/193,483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 43.2;
Pred. No. 1.
    Score 42.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
8
    DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 13;
    14;
                                                                                                                                                                                                                                                                                                                                       AND METHODS OF
  Length 4985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                       USE THEREOF
```

Gaps

0

187

247 788

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ő
                                                                                                                                                               US-10-240-485-3/c
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                  Sequence 3, Application US/10240485 Publication No. US20030148327A1 GENERAL INFORMATION:
APPLICANT: OLEK, Alexander
APPLICANT: PIEPENBRCK, Christian
APPLICANT: BERLIN, KUTT
TITLE OF INVENTION: Diagnosis of Diseases
TITLE OF INVENTION: Metastasis
FILE REFERENCE: 5013.1007
CURRENT APPLICATION NUMBER: US/10/240,485
CURRENT FILING DATE: 2002-10-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Sinhes 335;
                                                                                                                                                                                                                           2369
                                                                                                                                                                                                                                                                                                                                                                                                   2549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 41.7
35; Conservative
                                                                                                                                                                                                                        TAATAATAATAATAATAATT
                                                                                                                                                                                                                                                                                                                                                                                                   AAATATTCAGATATGGTTACCTCAGTTCAAAAGTGACGCTCGCGTCGATCTTAACTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATATAGTGAGACCTATGGAACTTACACTATAAATATCACTATTAAATTAACTGATAAGGG 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAAGACG 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATATTTATATATTTCCTGCTGGCGAACT 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACAATTTACGGAAAAAAGAAGTTTAATAAAAAGAGAGGCTACAAATTAAAGGCTATAAACA 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCCAACCAGTGAGAATCCTAGCAGTTCAT--CGGTCAGCGGTGAAACAAATATAACATT 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAATAATAAGAATAATAATAACAATAGCAATAATAATAATAATAATAATAATAATAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTACTGGAATAATTAGAGAATAAAAAAAAACAATAATAATAAACAATAATAAGAATAACA 3030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCCGCGTGACAGGAACG 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGATTTTATTTATTTTACATTGTTTTTCTCTTCAGTACTTTTTACATTTGCTGTATCGG 67
                                                                                                                                                                                                                                                                                ATATAGTACTAACAGCAGCTCTTTGGAGATAAGATTTCAGGATAACAATCCTAAATCTGA 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCTGTATGATAGGATGACTTTTTTATGTTTTGTCTTCTCACAATACACTTAATGGAGCAT 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACAACAACAATAATAAGAACAACAACAACAATAATAAGAATAATAATAATAACAATA 2970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATCTTCCCCCAAACATAATATTTAAATAACCATATTACAGCATACAGTGAAAGTCATA 187
                                                                                                                                                                                                                                                   TGGGAAATTTTATCTAAGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                      TCCAACTGGTGGGGGCACATATATTGGAAGAAATTCTGTTGATATGTGCTTTTATGATGG 725
                                                                                                                                                                                                                                                                                                                                         41.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 6.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                     809
                                                                                                                                                                                                                         2346
                                                           Associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                           with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-311-455-1906/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                       US-10-311-455-1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-240-485-3
                                                                                                                                                            SEQ ID NO 1906
LENGTH: 19734
                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                             Matches 157; Conserv
                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: PIEPE APPLICANT: BERLI
                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 2424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
OTHER INFORMATION: chemically
                                                                                                                            ORGANISM: Artificial Sequence
                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      366
283 AGCGGTGAAACAAATATAACATTACAATTTACGGAAAAAAGAAGTTTAATAAAAAAGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAAAAGAAGTTTAATAA 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAATAAAAACTTTCAAAA 229
                                                                                                                                                                                                                                                                                                                                                                                  PIEPENBROCK, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.9%;
ilarity 51.0%;
Conservative
                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                  Alexander
                                         3.9%;
                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
APPLICANT: BERLIN, Kurt
TITLE OF INVENTION: Diagnosis of Diseases Associated wit
TITLE OF INVENTION: Cytosine methylation
FILE REFERENCE: 5013.1014
CURRENT APPLICATION NUMBER: US/10/311,455
CURRENT APPLICATION NUMBER: US/10/311,455
CURRENT FILING DATE: 2002-12-16
PRIOR APPLICATION NUMBER: PCT/EP01/07537
PRIOR FILING DATE: 2001-07-02
PRIOR FILING DATE: 2001-07-02
PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: DE 10019173.8
PRIOR FILING DATE: 2000-04-07
PRIOR PILING DATE: 2000-06-30
PRIOR PILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR FILING DATE: 2000-09-01
PRIOR FILING DATE: 2000-09-01
NUMBER OF SEQ ID NOS: 202
SEQ ID NO 3
LENGTH: 6137
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1906, Application US/10311455 Publication No. US20030143606A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: PCT/EP01/03970
PRIOR FILING DATE: 2001-04-06
PRIOR APPLICATION NUMBER: DE 10019058.8
PRIOR FILING DATE: 2000-04-06
                                                                                                                                                             FEATURE: OTHER INFORMATION: chemically treated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     197 ATAGGATGACTITTTTATGTTTTGTCTCACAATACACTTAATGGAGCATGTCCAACCA 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  137 CCAAACATAATATATAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATG 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAAAATTATTATATAAATACACATAAAAAAACCTCTAAATATATCTCTTCCCAAATCCA 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCTACAACTCACCTTTTCAATAATACCAACTAATAAAAACATATCACTAAAACTCAAAA 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAACATTACAATTTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 42.8; DE Pred. No. 6.7; 0; Mismatches
                                              Score 42.4; D
Pred. No. 14;
O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       treated
                                                                                                                                                                  genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genomic DNA
                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
                                                 171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97;
                                                                                           12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Homo sapiens)
                                                                                                                                                               (Homo sapiens)
                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the Immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                              <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            316
342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
```

Ş

5965

6025 761

```
В
                                                                                                                                                                                 밁
  멂
                                                                                                                                    Ş
                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: chemically treated genomic DNA (Homo sapiens) US-10-240-453-322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/10/240,453
CURRENT FILING DATE: 2002-10-02
PRIOR APPLICATION NUMBER: PCT/EPO1/03973
PRIOR FILING DATE: 2001-04-06
PRIOR APPLICATION NUMBER: DE 10019058.8
PRIOR FILING DATE: 2000-04-06
PRIOR FILING DATE: 2000-04-06
PRIOR APPLICATION NUMBER: DE 10019173.8
PRIOR FILING DATE: 2000-04-07
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR FILING DATE: 2000-06-30
PRIOR FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS:
SEQ ID NO 322
LENGTH: 9095
                                                                                                                                                                                                                                                                        Query Match 3.9%;
Best Local Similarity 45.8%;
Matches 146; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 322, Application US/10240453 Publication No. US20030148326A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: PIEPENBROCK, Christian
APPLICANT: BERLIN, Kurt
TITLE OF INVENTION: Diagnosis of Diseases Associated with DNA
TITLE OF INVENTION: Transcription
TITLE OF INVENTION: by Means of Assessing the Methylation Status of Genes Associated
TITLE OF INVENTION: by Means of Assessing the Methylation Status of Genes Associated
TITLE OF INVENTION: With DNA TRANSCRIPTION
FILE REFERENCE: 5013.1009
FILE REFERENCE: 5013.1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: DE 10043826.1 PRIOR FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: OLEK, Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3012
6264 TCTCAAAAAAAAAAAAAAAAAAAAATACCGACGAACACAATAACCTATAATCCC
                                                                                                                          582 CACTATTAAATTAACTGATAAGGGAAATATTCAGATATGGTTACCTCAGTTCAAAAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        САЛЛАТАЛАТТАТАЛАЛАССБАТЛАТССАЛАТАЛАЛАЛТАЛАЛАЛАСТТАЛАСТАЛАТАСТ 2715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTATATTCCTGCTGGCGAACTAAAAATTTGCCTTTTGGTGGTATCTGGGATGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 СТААААСАТААТАААТАААААСААААСТАСААААААСТААСТАААСТААСТААСТ 2895
                                          CGCTCGCGTCGATCTTAACTTGCGTCCAACTGGTGGGGGGCACATATATTGGAAGAAATTC
                                                                                         TCTGAAGTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTATTAAAAATAAAAAAAAAATAAATT 2685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTATTAAATTAACTGATAAGGGAAATATT 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGAAGTTAAGAGTAAAAAGACGATATAGTGAGACCTATGGAACTTACACTATAAATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACACTTAACTCAGCTCATTTTAACTGTAATAAAAACGCGGCTTCAGGTGCAAGTTTATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACAAATTAAAGGCTATAAACAATTATTGTTCAAAAGTGTTAACTGCCCATCCGGCCTA 402
                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                Score 42.2;
Pred. No. 11;
                                                                                                                                                                                                                                                                          M1smatches
                                                                                                                                                                                                                                                                                                                     DB 12;
                                                                                                                                                                                                                                                                          173;
                                                                                                                                                                                                                                                                        Indels · 0;
                                                                                                                                                                                                                                                                                                                  Length 9095;
                                                                                                                                                                                                                                                                          Gaps
                                            701
                                                                                       6145
                                                                                                                                    641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
              CURRENT APPLICATION NUMBER: US/10/074,095
CURRENT FILING DATE: 2002-02-14
PRIOR APPLICATION NUMBER: 09/764,860
PRIOR FILING DATE: 2001-01-17
PRIOR APPLICATION NUMBER: 60/179,065
PRIOR FILING DATE: 2000-01-31
PRIOR APPLICATION NUMBER: 60/180,628
PRIOR FILING DATE: 2000-02-04
PRIOR PILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: 60/214,886
PRIOR FILING DATE: 2000-06-28
PRIOR FILING DATE: 2000-06-28
                                                                                                                                                                                                                                                                                                                                                                                       US-10-074-095-1185/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
US-09-764-860-1185/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-764-860-1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Prior application data removed - consult PALM or file wrapper NUMBER OF SEQ ID NOS: 1198
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1185
LENGTH: 6209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1185, Application Patent No. US20020094953A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                     Sequence 1185, Application US/10074095 Publication No. US20030077704A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC008C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/764,860 CURRENT FILING DATE: 2001-01-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2629 AACACATTTCCTGAATTTATTGAAATGATCATTTTTCTTTTTATTAATATGACCAACTATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2689 TGCTTAAAAGTTTCTCTTTTTTTACTTTCTTTGTTCGTGAATGAGTGTTGAATTTTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6084 TTATAAAATATATTTCTTCTCTCTCTTTTTTTAAAACTATTCCCTTACAAATAAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2509 GTCTCACTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2569 CIGACIGATITITCTITIAACATIATITACTIGITIATTATITITAAAAAAATAGAGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5964 CATCACACTTCTTAATATT 5946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182 GTCATACTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 GGAACGAATCTTCCCCCAAACATAATATTAAATAACCATATTACAGCATACAGTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     702 TGTTGATATGTGCTTTTATGATGGATATAGTACTAACAGCAGCTCTTTGGAGATAAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 TATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 TGAATAAGATTTTATTTTTTTACATTGTTTTTCTCTCTCAGTACTTTTTACATTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAAGAAATTGCATATACT 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/09764860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 41.6;
Pred. No. 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Antibodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

181 2570

Ş

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR	PRIOR	PRIOR	PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR
FILING DATE APPLICATION APPLICATION APPLICATION APPLICATION	FILING DATE: APPLICATION	APPLICATION FILING DATE FILING DATE APPLICATION FILING DATE FILING	R APPLICATION R FILING DATE A APPLICATION FILING DATE APPLICATION
2000-11-17 1000-11-17 2000-11-17 NUMBER: 60/249, 2000-11-17 2000-11-17 NUMBER: 60/249, 2000-11-17 NUMBER: 60/249, 2000-11-17 NUMBER: 60/249, 2000-11-17 2000-11-17 2000-11-17 NUMBER: 60/249, 2000-11-17	25, 25, 25, 25, 25, 25, 25, 25, 25, 25,	139, 139, 139, 139, 139, 139, 139, 139,	60/229, -05 60/236, -02 -02 -02 -02 -02 -02 -02 -02 -02 -02
245 244 244 217 217 211 215 215 2164	759 213 214 214 214 215 216 236 236 218 218 213	040 940 935 937 937 787 787 4474 474 474 476 681	509 367 039 038 370 802

OR FILING DATE: 2000-07-11
OR APPLICATION NUMBER: 60/220, 963
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/220, 963
OR FILING DATE: 2000-07-16
OR FILING DATE: 2000-07-17
OR FILING DATE: 2000-07-17
OR FILING DATE: 2000-07-14
OR APPLICATION NUMBER: 60/218, 290
OR APPLICATION NUMBER: 60/218, 290
OR APPLICATION NUMBER: 60/225, 757
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/226, 868
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/216, 880
OR FILING DATE: 2000-09-07
OR FILING DATE: 2000-09-17
OR APPLICATION NUMBER: 60/216, 880
OR APPLICATION NUMBER: 60/221, 270
OR FILING DATE: 2000-09-21
OR APPLICATION NUMBER: 60/234, 274
OR FILING DATE: 2000-09-21
OR APPLICATION NUMBER: 60/234, 274
OR FILING DATE: 2000-09-21
OR APPLICATION NUMBER: 60/234, 230
OR FILING DATE: 2000-09-21
OR APPLICATION NUMBER: 60/224, 519
OR APPLICATION NUMBER: 60/236, 368
OR FILING DATE: 2000-19-01
OR APPLICATION NUMBER: 60/236, 368
OR FILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/236, 368
OR FILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/229, 344
OR PILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/229, 344
OR PILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/229, 344
OR FILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/229, 344
OR FILING DATE: 2000-09-01
OR APPLICATION NUMBER: 60/229, 345
OR FILING

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/232,400 FILING DATE: 2000-09-14

FILING DATE: 2000-11-17
APPLICATION NUMBER: 60/249,297
FILING DATE: 2000-11-17

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                      RESULT 13
US-10-311-455-2128/c
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                  Sequence 2128, Application US/10311455 Publication No. US20030143606A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
              APPLICANT: BERLIN, Kurt
TITLE OF INVENTION: Diagnosis of Diseases
TITLE OF INVENTION: cytosine methylation
FILE REFERENCE: 5013.1014
CURRENT APPLICATION NUMBER: US/10/311,455
CURRENT FILING DATE: 2002-12-16
                                                                                                  APPLICANT: OLEK, Alexander APPLICANT: PIEPENBROCK, CI APPLICANT: BERLIN, Kurt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR PRIOR
PRIOR
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/231,243 FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/241,221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/241,826
FILING DATE: 2000-10-20
APPLICATION NUMBER: 60/241,786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/233,063 FILING DATE: 2000-09-14 APPLICATION NUMBER: 60/232,397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/233,064
FILING DATE: 2000-09-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/231,244
FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/231,414
FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/231,242
FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/232,081
FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/232,080
                                                                                                                                                                                                                                                                            2509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/246,475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/241,808 FILING DATE: 2000-10-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/232,401 FILING DATE: 2000-09-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/232,399 FILING DATE: 2000-09-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 2000-09-14
                                                                                                                                                                                                                                                                                                                                           2569 CTGACTGATTTTTCTTTTAACATTATTTACTTGTTTATTATTTTTAAAAAATAGAGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2689 TGCTTAAAAGTTTCTCTTTTTTTACTTTCTTTGTTCGTGAATGAGTGTTGAATTTTGTCA 2630
                                                                                                                                                                                                                                                                                             182 GTCATACTCTGT 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                62 TATCGGCAGATAAAATTCCCGGAGATGAAAGCATAACTAATATTTTTGGCCCGCGTGACA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 TGAATAAGATTTTATTTATTTTACATTGTTTTTCTCTTCAGTACTTTTTTACATTTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98;
                                                                                                                                                                                                                                                                                                                                                                    GGAACGAATCTTCCCCCAAACATAATAATAATAATAACCATATTACAGCATACAGTGAAA 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                             AACACATTTCCTGAATTTATTGAAATGATCATTTTTCTTTTATTAATATGACCAACTATA
                                                                                                                                                                                                                                                                           GTCTCACTTTGT 2498
                                                                                                                    PIEPENBROCK, Christian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000-11-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000-10-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.8%;
51.0%;
PCT/EP01/07537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 41.6; Di
; Pred. No. 13;
0; Mismatches
                                                                                  Associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                  Immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                System
                                                                                                                                                                                                                                                                                                                                                                                                               2570
                                                                                                                                                                                                                                                                                                                                           2510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                β
                                                                                  Deter
                                           Q
                                                                                                           γ
              밁
                                                                              밁
                                                                                                                                                                                                                     ; ORGANISM: Drosophila melanogaster US-10-108-605-116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                    Best
                                                                                                                                                                                   Query Match
                                                                                                                                                  Matches 121;
                                                                                                                                                                    Local Similarity
```

2039

AACAAAATCTCTAATTTCGATTGCGGATCATAATTAAAATCGCATAATTATGCTAAAAA AATCCTAGCAGTTCATCGGTCAGCGGTGAAACAATATAACATTACAATTTACGGAAAAA 321 ATGTTTTCTTTTTTTTTTTTTTACATCATGATAGAGTGTTTTTACCATCGAAATGAG

262

202 ATGACTITTTTATGTTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGTGAG

Conservative

0;

Mismatches 133;

0;

Gaps

2040 261 10;

DB 13;

Length 2241; Indels

3.8%;

Score 41.2; Pred. No. 1

```
PRIOR APPLICATION NUMBER: US 60
PRIOR FILING DATE: 2000-01-14
NUMBER OF SEQ ID NOS: 361
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 116
LENGTH: 2241
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
US-10-108-605-116/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; OTHER INFORMATION: chemically treated genomic DNA (Homo sapiens) US-10-311-455-2128
                                                                                                                                                                                                                                                                                                                                                                                   Sequence 116, Application US/10108605 Publication No. US20020160934A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 2424
SEQ ID NO 2128
LENGTH: 15548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                         FILE REFERENCE: 31133B
CURRENT APPLICATION NUMBER: US/10/108,605
CURRENT FILING DATE: 2002-03-27
                                                                                                                                                                                                                                                      TITLE OF INVENTION: NUCLEIC ACID SEQUENCES FROM DROSOPHILA MELANOGASTER THAT ENCOD TITLE OF INVENTION: PROTEINS ESSENTIAL FOR LARVAL VIABILITY AND USES THEREOF
                                                                                                                                                  PRIOR APPLICATION NUMBER: US 09/761,142 PRIOR FILING DATE: 2001-01-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: DE 10043826.1
PRIOR FILING DATE: 2000-09-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE: 2001-07-02
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Broadus, Julie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259 GAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACGGAA 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199 AGGATGACTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        139 AAACATAATATTAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGAT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAAGAAGTTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTCAAA 378
                                                                                                                                                                                                                                                                                                               Bachmann, Jane
                                                                                                                                                                                                                                                                                                                                       Stam, Lynn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     48.38;
                                                                                                                              60/176,418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 41.6;
Pred. No. 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 15548;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
CURRENT APPLICATION NUMBER: US/10/311,455
CURRENT FILLING DATE: 2002-12-16
PRIOR APPLICATION NUMBER: PCT/EP01/07537
PRIOR FILLING DATE: 2001-07-02
PRIOR APPLICATION NUMBER: DE 10032529.7
PRIOR FILLING DATE: 2000-06-30
PRIOR FILLING DATE: 2000-06-30
PRIOR FILLING DATE: 2000-09-01
PRIOR FILLING DATE: 2000-09-01
NUMBER OF SEQ ID NOS: 2424
SEQ ID NO 890
                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                          δô
                                                                                                                 Ş
                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                         Ş
                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
US-10-311-455-890/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 3.8%;
Best Local Similarity 44.4%;
Matches 211; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 890, Application US/10311455 Publication No. US20030143606A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: OLEK, Alexander
APPLICANT: PIEPENBROCK, Christian
APPLICANT: BERLIN, Kurt
TITLE OF INVENTION: Diagnosis of Diseases Associated with the Immune System |
TITLE OF INVENTION: Cytosine methylation
FILE REFERENCE: 5013.1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: chemically treated genomic DNA (Homo sapiens)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 13420
13059 TATACTTCTAATTTTACCTATTTAATCCTAAAAATACTAAAATTTATTTCCTATAAAACC 13000
                                                                                                                                                                 13179
                                                                                                                                                                                                                                        1859 GAAAACGATCCAAG 1846
                                       496 CCTTTTGGTGGTATCTGGGATGCTACTCTGAAGTTAAGAGTAAAAAGACGATATAGTGAG 555
                                                                                                                                                                                                   376 AAAAGTGTTAACTGCCCATCCGGCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAA 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140 AACATAATATATAAATAACCATATTACAGCATACAGTGAAAGTCATACTCTGTATGATA 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382 GTTAACTGCCCATCCGGCCCTAACACTTAACTCAGCTCATTTTAACTGTAATAAAAAACGCG 441
                                                                                                                                                                                                                                                                                                                                                                                                                                              200 GGATGACTTTTTATGTTTGTCTTCTCACAATACACTTAATGGAGCATGTCCAACC---- 255
                                                                                                                     AACGCGGCTTCAGGTGCAAGTTTATATTATATTCCTGCTGGCGAACTAAAAAATTTG 495
                                                                                                                                                               CAAAATATATTACAAACTTTCAACCTTACTACAAATAAACCCCCATTCTATAACAATCGAT 13120
                                                                                                                                                                                                                                                                        GAAAAAAGAAGTTAATAAAAAGAGAGCTACAAATTAAAGGCTATAAACAATTATTGTTC 375
                                                                                                                                                                                                                                                                                                                                                              AGTGAGAATCCTAGCAGTTCATCGGTCAGCGGTGAAACAAATATAACATTACAATTTACG 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTTAGTGTATATCTGGTAATAATTATTATGCATTATGCGTTATTTCGATTAAAAAAAGAG 1860
                                                                               GCTTCAGGTGCAAG 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 41; DB 12; Length 13420; Pred. No. 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    by Determ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ť., *.
```

Search completed: August 25, 2003, 18:56:26 Job time : 292 secs

This Page Blank (uspto)